United States Air Force

Environmental Assessment

New Security Gate, US Air Force Museum
Wright-Patterson AFB, Ohio

Contract No.: F33601-01-DW003
Delivery Order 5011

March 2003

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
MAR 2003		**00-00-2003 to 00-00-2003**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Environmental Assessment New Security Gate, US Air Force Museum Wright-Patterson AFB, Ohio	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **CH2M HILL,One South Main Street, Suite 1100,Dayton,OH,45402**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**56**	

FINDING OF NO SIGNIFICANT IMPACT

Name of Action: New Security Gate, USAF Museum, WPAFB, Ohio

The United States Air Force (USAF) Museum at Wright-Patterson Air Force Base (WPAFB) proposes the installation of an additional security gate into the museum and adjacent Area B runways area for occasional use during special events. A total of eight events, each drawing estimated crowds of 30,000 to as many as 75,000, are planned at the museum to celebrate the centennial of powered flight in 2003. Thereafter, four to five annual events will be located in this open space, including a radio-controlled aircraft fly-in, World War I aircraft fly-in, hot air balloon launch and the Fourth of July fireworks display.

Interstate travelers as well as any southbound traffic must follow a circuitous route when entering or exiting the museum. During special events, particularly events when many attendees arrive and leave simultaneously, lengthy queuing of vehicles occurs at the museum entrance and adjacent roadways. The Proposed Action would provide an additional access gate to the south side of the Area B runways area, facilitating traffic flow to and from I-675 and other points south. The gate is proposed to be located at an existing signalized intersection along Airway Road within one mile of the I-675 interchange.

Proposed Action and Alternatives:

The Proposed Action is the installation of a new gate that would allow access to the USAF Museum from Airway Road. The gate would be located in the boundary fence along Airway Road approximately 5000 feet west of the I-675 interchange, at the signalized intersection of Spinning Road. The gate would only be opened for use during special events at the USAF Museum that are expected to draw large numbers of visitors. It would be operated by museum staff. The action includes the installation of a gate wide enough for three vehicles to pass simultaneously (approximately 36 feet). This width would allow for a southbound through/right turn lane, a southbound left turn lane, and a northbound entrance lane, corresponding to the existing configuration of Spinning Road. The stream that parallels Airway Road to the north would be crossed temporarily with a corrugated metal culvert, which would allow for short-term use of the gate for the 2003 events. The culvert will be of sufficient size to maintain a natural substrate through the culvert and not impair flow through the channel. The access lane would be temporarily paved with gravel from Airway Road to the gate, a distance of approximately 100 feet. The culvert would eventually be replaced with a pre-cast, concrete arch culvert structure, also designed to not impair flow. The permanent crossing would include concrete abutments stabilized with rock channel protection along the stream banks above and below the abutments. The entrance lane would be paved with concrete and/or asphalt.

Over the short term, traffic will be controlled at the intersection by Security Forces, as needed, when the gate is open. The signalized intersection would eventually be modified to accommodate the traffic entering and leaving the new gate. The signal would be installed with a left turn arrow for traffic leaving the gate as well as entering the gate from eastbound

Airway Road. The signal would be phased to allow for a simultaneous left turn from both the eastbound and westbound lanes, and along the northbound and southbound lanes, when the gate is open. Changeable message lane-use signs would be installed to advise motorists when the gate is open/closed. The museum staff would activate the changeable signs when the gate is opened and closed. When the gate is closed, the signal would operate as it does currently.

One alternative evaluated was the use of an existing, 24-feet wide gate in the boundary fence along Harshman Road. This gate is wide enough as it stands for a single ingress lane and a single egress lane; no construction would be required. The configuration of Harshman Road in this vicinity makes left turns from southbound Harshman Road into the gate and left turns from the gate unsafe. This alternative would only safely allow right-turn-in/right-turn-out traffic. Therefore, this alternative would only serve arriving traffic from I-675 and other points south. It would not facilitate southbound traffic leaving the museum area.

The No Build Alternative was also considered as a baseline for comparison. The No Action Alternative would include no construction or provision of additional gates. All museum traffic would continue to access the museum and Area B runways area through the existing entrance on Springfield Street.

Environmental Consequences of the Proposed Action:

Natural Resources: The Proposed Action would result in a minor impact to vegetation at the project site. Approximately 10,000 square feet (0.23 acre) of ordinary scrub-shrub vegetation will be removed. The loss of this vegetation would not impact the diversity of plant life or habitat in the project vicinity, particularly because of the dominance of invasive shrubs at the site. Areas of the site that are temporarily disturbed during construction would be re-vegetated by grass seeding and replanting of shade trees, as appropriate.

The wildlife habitat that would be affected by the Proposed Action is typical for hedgerows in urban and suburban areas in the region. Although there would be a slight loss of habitat, no noticeable change in the wildlife populations is anticipated in the project vicinity.

No threatened or endangered species or critical habitats occur in the project vicinity. No wetlands would be affected by the Proposed Action.

Water Resources: The Proposed Action would not adversely affect the volume or quality of water in the local groundwater aquifer, and no project review by USEPA is required. The site is not located within Mad River Wellfield wellhead protection area. Therefore, no impacts to groundwater would occur from this alternative.

The Proposed Action includes the temporary installation of a corrugated metal culvert, to be replaced by a concrete arch structure to cross a very shallow, uniform, urban stream. This crossing would impact approximately 100 linear feet (1600 square feet, 0.04 acre) of the stream. The impact will include the disturbance of the streambed and banks for culvert placement and removal, construction of the arch culvert, installation of rock channel protection to stabilize the bed and banks against erosion of the structure, and removal of adjacent scrub-shrub vegetation. The temporary culvert would be of sufficient size to maintain the current hydraulic flow characteristics of the stream. The lower 10% of the culvert would be buried below the streambed elevation to allow for natural substrate

through the culvert. The ultimate replacement with the proposed arch culvert would allow re-establishment of a natural stream substrate. Although rock will be added to stabilize the structure, it would be installed to maintain a low flow channel and the continuity of aquatic life movement beneath the structure. Shrub vegetation will be replaced to the extent possible without impairing safe access to the gate. Impacts to waters of the US are regulated under the Clean Water Act, and require a permit from the Army Corps of Engineers. It is anticipated that the Corps of Engineers will authorize this project under Nationwide Permit 14. With the implementation of erosion control best management practices, the Proposed Action would have a negligible impact on water quality. The Proposed Action would affect no regulated floodplains, and will be designed to maintain channel capacity.

Hazardous Materials/Waste: The Proposed Action would not cause contamination of the soil, groundwater or surface water, provided construction best management practices are implemented, including proper location of vehicle staging areas and maintenance. There is known contamination approximately 20 feet below ground elevation and 300 feet from the Proposed Action site. Although this contamination will not likely be encountered, monitoring during excavation would be needed to protect worker safety and determine if special disposal of excavated materials is required.

Land Use: The Proposed Action is compatible with the existing and planned land use of the Area B runways area. The gate would be constructed such that the current fence height would be maintained, and there would be no additional obstructions into the operational clear zone surrounding the runway. The project would not change use of the runway for occasional incoming aircraft from an aircraft safety perspective. No scheduling conflict between museum events that would use the gate and use of the Area B runways area by aircraft or for the laser weapon research is anticipated. As this alternative would only be used on an occasional basis, it is not anticipated to cause a change in land use in adjacent areas.

Soils: Excavation for the Proposed Action, including installation of the arched stream crossing, entrance road pavement, utilities, and fence/gate posts, would disturb approximately 12,000 square feet (0.28 acre) of soil. A sediment and erosion control plan would be developed, in accordance with Air Force and WPAFB construction standards. Excess excavated soil would be hauled off-site to an upland disposal location. Topsoil would be stockpiled for reuse if possible.

Cultural Resources: The Proposed Action would have no impacts to cultural resources. No archeological resources or historic structures eligible for or listed on the National Register of Historic Places would be affected by the Proposed Action. The Proposed Action would not cause a change in land use in the Army Air Forces Historic District.

Air Quality: The Proposed Action does not include adding through lanes to any roadways, and would not cause an increase in traffic along the existing roadways. The Proposed Action is intended to improve the efficiency of traffic flow to and from the museum during special events and, as a result, may have a general beneficial impact on the local air quality. A minor localized impact to air quality may occur in the area of construction, due to the exhaust of heavy equipment and fugitive dust during earthwork. Fugitive dust impacts will be mitigated in accordance with standard WPAFB practices for controlling wind erosion

during construction, primarily by watering dry soil surfaces and restoring vegetative cover as soon as possible after construction.

Socioeconomics: The Proposed Action would generate no new permanent jobs. It will have an insignificant beneficial impact on local, short-term, construction-related employment. The project will not affect income levels or the installation's contribution to the local economy.

Transportation: The Proposed Action is installation of a new gate to Airway Road at an existing, signalized, three-way intersection. Under normal circumstances, this gate would be closed and the intersection would continue to operate as it currently does, with no change in traffic movements or signal configuration. When the gate is opened during special events, this alternative would add the northern approach to the intersection, accommodating full movement traffic ingress and egress from Airway Road. As a large portion of visitor traffic approaches and leaves the museum by way of the I-675 interchange at Airway Road, this alternative would reduce local traffic congestion during special events along Springfield Street and Harshman Road by providing a more direct route to I-675. It may also reduce the length of time that the local roadways are congested by vehicles leaving after large special events. Minor delays of local traffic at the intersection of Airway and Spinning Roads may occur when the gate is open due to the queuing of traffic entering the gate. The existing configuration of Airway Road (a four-lane roadway with center turn lane) will minimize this impact. All traffic exiting the gate would queue within the base, with no effect on the public thoroughfares. Delays at the intersection would also be minimized through proper signal phasing, based on the volume of traffic, and the provision of left turn lanes and signals in all directions. Minor temporary impacts may occur along Airway Road as the normal flow of traffic is interrupted during construction of the Proposed Action.

Utilities: Underground utility lines are known to occur in the general vicinity of the Proposed Action site. In advance of any earthwork, utility lines would be accurately located to insure that underground utilities and worker safety would be protected. In particular, a known gas pipeline and buried electrical line at the project site will be protected. No additional utility lines would be required for any intersection signal improvements that are part of the Proposed Action.

Environmental Consequences of the Harshman Road Alternative:

The Harshman Road Alternative would have no impact on any of the following: vegetation, wildlife, threatened or endangered species, wetlands, groundwater, surface waters, floodplains, hazardous waste sites, land use, soils, cultural resources, socioeconomics, or utilities.

The Harshman Road Alternative would provide a more direct ingress to the Area B runways area/parking area from I-675. Therefore, it would improve the flow of arriving traffic and reduce congestion along Springfield Street from arriving traffic. Minor delays of local traffic along Harshman Road may occur when the gate is open due to the queuing of traffic entering the gate. The existing configuration of Harshman Road (a four-lane roadway) will minimize this impact. This alternative would not accommodate a left turn onto Harshman Road toward Airway Road. Therefore, it would not improve the flow of traffic returning to I-675. All traffic would still exit to Springfield Street, and return to I-675

along the current route. The improvement to the flow of traffic arriving at the museum may have a beneficial impact on air quality.

Environmental Consequences of the No Action Alternative:

The No Action Alternative would have no impact on any of the following: vegetation, wildlife, threatened or endangered species, wetlands, groundwater, surface waters, floodplains, hazardous waste sites, land use, soils, cultural resources, air quality, socioeconomics, or utilities.

This alternative would not change the current traffic patterns. Significant traffic delays and queuing along Springfield Street and possibly along other nearby roadways would continue during special museum events.

Mitigation:

The following mitigation measures would be implemented to minimize impacts of the Proposed Action:

- A sediment and erosion control plan would be developed, in accordance with Air Force and WPAFB construction standards, to prevent the loss of soil during construction by storm water runoff and/or wind erosion, and prevent sedimentation of the receiving stream and air pollution with dust and particulate matter. Best management practices for soil erosion control include the installation of sediment control fencing along the limits of construction, temporary stabilization of soils with mulch or erosion control blankets, and re-establishment of ground cover vegetation by grass seeding as soon as possible after construction. Excess excavated soil would be hauled to an upland disposal location.
- Areas of the site that are temporarily disturbed during construction would be initially re-vegetated by grass seeding. After final construction of the permanent crossing, shrub vegetation would be replaced to the extent possible. The base natural resources manager would approve re-vegetation specifications in advance of construction.
- An emergency spill plan would be in effect during construction that includes response procedures in the event of a spill of petroleum products or other hazardous materials. Additional construction best management practices to avoid contamination of surface and groundwater would also be implemented, including proper location of equipment staging areas and maintenance.
- Care would be taken during excavation to insure no contamination is encountered. If so, measures will be taken to protect workers during the construction, and any contaminated materials that are excavated would be disposed in accordance with state and federal laws.
- The temporary culvert would be of sufficient size to allow the lower 10% of the culvert to be buried below the streambed elevation to accommodate natural substrate through the culvert, as well as maintain the current hydraulic flow characteristics of the stream. The ultimate replacement with the proposed arch culvert would allow re-establishment

of a natural stream substrate. Rock channel protection would be installed to maintain a low flow channel and the continuity of aquatic life movement beneath the structure.

- In advance of any earthwork, utility lines would be accurately located to insure that underground utilities and worker safety would be protected. The project would be designed to avoid impacts to underground utilities.

Public Notice:

All actions proposed in this Environmental Assessment (EA) were previously analyzed in a Draft EA, and circulated for public comment from 11 Apr 03 through 10 May 03. A public notice was posted in the *Dayton Daily News* on 11 Apr 03. No comments were received.

Finding of No Significant Impact:

Based on this environmental assessment conducted in accordance with the requirements of the National Environmental Policy Act, the Council on Environmental Quality, and Air Force Regulation 19-2, I conclude the environmental effects of the installation of the new security gate at the USAF Museum/ Area B runways area at WPAFB, Ohio would not be significant and that the preparation of an environmental impact statement is not warranted.

FONSI Approved:

16 May 03

RONALD J. LESTER
Director
Office of Environmental Management

Date

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1.0 Purpose of and Need for Action

1.1 Project Description

The United States Air Force Museum (USAFM) at Wright-Patterson Air Force Base (WPAFB), near Dayton, Ohio (Exhibit 1), proposes the installation of an additional security gate into the museum and adjacent Area B runway area for occasional use during special events. A total of eight events, each drawing estimated crowds of 30,000 to as many as 75,000, are planned at the museum to celebrate the centennial of powered flight in 2003. Thereafter, four to five annual events will be located in this open space, including a radio-controlled aircraft fly-in, the Air Force marathon, World War I aircraft fly-in, hot air balloon launch and the Fourth of July fireworks display.

The USAFM lies approximately 6 miles south of Interstate 70 (I-70) and 4 miles east of Interstate 75 (I-75). Current signage along I-70 and I-75 and directions on the USAFM website direct visitor traffic to follow I-675 to the Airway Road/Colonel Glenn Highway interchange, southeast of the museum. The majority of interstate and inter-regional visitor traffic to the museum arrives by way of this route. All visitors to the museum must enter from the north by way of a single entrance from Springfield Street (Exhibit 2).

Interstate travelers as well as any southbound traffic must follow a circuitous route when exiting the museum. During special events, particularly events when many attendees arrive and leave simultaneously, lengthy queuing of vehicles occurs at the museum entrance and adjacent roadways. The Proposed Action would provide an additional access gate to the south side of the Area B runways, facilitating traffic flow to and from I-675 and other points south. The gate is proposed to be located at an existing signalized intersection along Airway Road within one mile of the I-675 interchange.

1.2 Decision to be Made

The decision to be made as part of this Environmental Assessment (EA) is to determine whether there are any significant impacts of implementing the proposed action such that a Finding of No Significant Impact (FONSI) can be determined.

1.3 Scope of Environmental Analysis

The National Environmental Policy Act (NEPA) requires federal agencies to consider environmental consequences in their decision-making process. The Council on Environmental Quality (CEQ) issued regulations to implement NEPA; these regulations include provisions for the content and procedural aspects of required environmental analysis. The Environmental Impact Analysis Process (EIAP, see Air Force Instruction [AFI] 32-7061) is the mechanism used by the Air Force to ensure that its decisions are made with a complete understanding of the potential environmental consequences. The CEQ regulations

are used with CFR 989 to determine the appropriate level of environmental documentation required for a specific proposed action.

This EA presents an assessment of the potential impacts of the construction of a new security gate at the USAFM at WPAFB. Consistent with AFI 32-7061 and the CEQ regulations, the scope of analysis presented in this EA is defined by the potential range of environmental impacts that would result from implementation of the Proposed Action, use of an alternative gate, or the no-action alternative. Resources that will potentially be impacted or require regulatory consultation review were considered in more detail to provide the decision-makers with sufficient evidence and analysis for determining whether additional analysis is required pursuant to Title 40 of the Code of Federal Regulations, Part 1508.9 (40 CFR 1508.9).

In consultation with the WPAFB Environmental Management Division (88 ABW/EM), the following resources or issues were identified as potentially affected by the Proposed Action:

- Natural Resources, including:
  - Vegetation
  - Wildlife
  - Threatened and Endangered Species
  - Wetlands
- Ground and Surface Waters
- Floodplains
- Hazardous Materials
- Land Use
- Soils
- Cultural Resources
- Air Quality
- Transportation

This document focuses on describing the existing conditions and assessing potential impacts of the alternatives to these conditions.

1.4 Regulatory Requirements

The implementation of the Proposed Action would require the following permits:

- Clean Water Act Section 404 permit from the Army Corps of Engineers, Louisville District. The project would likely qualify for authorization under Nationwide Permit 14 (Linear Transportation Projects).

2.0 Alternatives Including the Proposed Action

2.1 Introduction

The USAFM is located in Area B of WPAFB (Exhibit 2). The main museum is housed in two hangars, with a third hangar under construction, and is open to the public most days of the year. On average, the museum hosts 3500 to 4500 visitors daily. The museum is located at the original World War II area, which had runways/taxiways arranged in a triangular pattern. The airfield was used for research and development during WW II. Most of Area B is separated from the museum complex by a security fence, allowing free public access to the museum.

The runway area has a number of uses in addition to the museum. The museum branch chief coordinates these various activities. Typically it is used as an open space for recreation and special events that are open to the public, including soccer tournaments and large annual events such as the Air Force marathon, Fourth of July fireworks display and radio-controlled aircraft "fly-in." The runway area serves as the main activity area as well as overflow parking area for these events. The southern runway is used occasionally for landing aircraft that are being acquired by the museum. The southern portion of Wright Field is also periodically used by the Air Force Research Laboratory for research and development activities.

The year 2003 marks the centennial anniversary of powered flight. As the home of the Wright Brothers, Dayton and WPAFB will sponsor a number of celebratory events, in addition to other annual events. As a result, eight public events are planned by the museum to be held in the runway area. These events, plus the influx of visitors to the region for the centennial, are expected to bring exceptionally large numbers of visitors to the museum. An estimated 30,000 to 75,000 visitors are expected at the museum during each of these special events.

Currently, USAFM visitors enter and exit freely during normal museum hours by way of a two-lane entrance road from Springfield Street at Gate 28-B. Ordinarily the two-lane entrance is adequate. However, during special events, such as the annual Fourth of July fireworks display, the single access is severely inadequate to accommodate the number of vehicles. The purpose of the Proposed Action is to provide an additional security gate to the south side of the runway area to be used during these large public events. Although of immediate importance to the events planned for 2003, the proposed action would benefit many annual events planned into the foreseeable future.

2.2 Process Used to Formulate Alternatives

During special events that draw a large crowd of visitors, local roadways around the museum become congested. The Proposed Action is intended to improve the flow of visitor traffic, particularly to and from the south and I-675, during these special events.

To improve traffic flow, alternatives were considered that would meet the following objectives:

1. As the runway area is and will be used for public parking during the special events, the new gate would allow for direct vehicle access to the airfield from the adjacent public roadways.
2. The new gate would facilitate more direct ingress and egress between the USAFM and I-675 and points south.
3. The new gate would minimize impact to the operational portion of Area B. Direct access to the runway area from public thoroughfares would allow for gate management by museum personnel with no additional security forces or risk to the secured portion of Area B, and would avoid heavy traffic volumes at security gates.

Two alternatives meeting these objectives are considered in this Environmental Assessment:

1. Installation of a new gate to Airway Road at the Spinning Road intersection (Proposed Action), or
2. Use of an existing gate along Harshman Road (Harshman Road Alternative).

The No Action Alternative is also considered as a baseline for comparison.

2.3 Alternatives Eliminated from Further Study

1. Access to Loop Road. Loop Road is one of the main thoroughfares in the operational portion of Area B (Exhibit 2). It passes along the east side of the museum area. There is an existing gate that allows access to Loop Road from the runway area.

On occasion, during mass exodus from a special event, vehicles are permitted to leave the USAFM by way of the Loop Road gate and then routed north to Springfield Street. While this option can be exercised over a short period, it is unsuitable for sustained public access to and from the airfield. Use of this gate requires the commitment of additional security forces and does not meet the objective of minimizing impact to the operational portion of the base. This option also does not facilitate traffic flow to the south. Further, this gate is typically reserved for access to special events by emergency vehicles. Using this gate as a public entrance could compromise access to the airfield area in case of an emergency.

2. Additional access to Springfield Street. Installing an additional access to Springfield Street would provide a comparable replacement to the Loop Road gate. However, all visitor traffic would still travel along Springfield Street, with no improved access to I-675 or other points south.

3. Alternate Airway Road Gate Locations. Alternate locations for a new gate to Airway Road would have comparable environmental impacts as the Proposed Action, and would require an additional signalized intersection along Airway Road to be comparably effective. In addition, Airway Road has no left turn lane beyond 200 yards west of Spinning Road. The proposed location takes advantage of the existing signalized intersection and left turn lanes, and therefore would be less expensive than alternate locations.

2.4 Description of Alternatives Considered

2.4.1 Proposed Action (Airway Road Alternative)

The Proposed Action is the installation of a new gate that would allow access to the Area B airfield from Airway Road (Exhibits 2, 3 and 4). The gate would only be opened for use during special events at the airfield that are expected to draw large numbers of visitors. It would be controlled by museum staff.

The gate would be located in the boundary fence along Airway Road approximately 5000 feet west of the I-675 interchange, at the signalized intersection of Spinning Road. The action includes the installation of a gate wide enough for three vehicles to pass simultaneously (approximately 36 feet). This width would allow for a southbound through/right turn lane, a southbound left turn lane, and a northbound entrance lane, corresponding to the existing configuration of Spinning Road. The stream that parallels Airway Road to the north would be crossed temporarily with a corrugated metal culvert, which would allow for short-term use of the gate for the 2003 events. The culvert will be of sufficient size to not impair flow through the channel. The access lane would be temporarily paved with gravel from Airway Road to the gate, a distance of approximately 100 feet. The culvert would eventually be replaced with a pre-cast concrete arch structure, also designed to not impair flow. The permanent crossing would include concrete abutments stabilized with rock channel protection along the stream banks above and below the abutments. The entrance lane would be paved with concrete or asphalt.

Over the short term, traffic will be controlled at the intersection by Security Forces when the gate is open as needed. The signalized intersection would eventually be modified by WPAFB to accommodate the traffic entering and leaving the new gate, in accordance with design recommendations of the City of Riverside Engineer (see Exhibit 5). The signal would be installed with a left turn arrow for traffic leaving the gate as well as entering the gate from eastbound Airway Road. The signal would be phased to allow for a simultaneous left turn from both the eastbound and westbound lanes, and along the northbound and southbound lanes, when the gate is open. Changeable message lane-use signs would be installed to advise motorists when the gate is open/closed. The museum staff would activate the changeable signs when the gate is opened and closed. When the gate is closed, the signal would operate as it does currently.

2.4.2 Harshman Road Alternative

The Harshman Road Alternative is located approximately 1,500 feet north of the Airway Road intersection, and approximately two roadway miles from the I-675 interchange (Exhibit 2 and 3). This alternative would use an existing, 24-foot-wide gate in the WPAFB boundary fence along Harshman Road. This alternative would include no new construction.

This existing gate is wide enough for a single ingress lane and a single egress lane. However, the configuration of Harshman Road in this vicinity makes left turns from southbound Harshman Road into the gate and left turns from the gate unsafe without a signal. Occasional use of the gate does not warrant a signal at this location, nor would a signal be prudent. The existing posted speed and sight distance along Harshman Road north of the gate limit the ability of oncoming, southbound drivers to avoid vehicles

stopped or turning in the area of the gate. This alternative would only safely allow right-turn-in/right-turn-out traffic. Modification of Harshman Road to allow for a center, left turn lane cannot be accomplished because of cost and the narrow width of the right-of-way. Therefore, this alternative would not meet the southbound egress objective.

2.4.3 No Action Alternative

The No Action Alternative would include no construction or provision of additional gates. All museum traffic would continue to access the museum and airfield through the existing entrance on Springfield Street.

2.5 Comparison Matrix of the Environmental Effects

The environmental consequences of each alternative (Proposed Action, Harshman Road, and No Action) are summarized in Table 2-1. Section 4 of this EA provides more detailed information on the effects of each alternative for the resource areas examined in this document.

TABLE 2-1
Summary of Environmental Consequences of Alternatives Considered

Resource Area	Proposed Action	Harshman Road Alternative	No Action Alternative
Vegetation	Minor impact to ordinary scrub-shrub vegetation. Disturbed area will be revegetated to the extent possible with grass seed and shade trees as appropriate after construction.	No impact	No impact
Wildlife	The action will cause minor loss of urban wildlife habitat.	No impact	No impact
Threatened and Endangered Species	No threatened or endangered species or their critical habitats occur in the project area, according to field studies at WPAFB.	No impact	No impact
Wetlands	No wetlands occur in the project area.	No impact	No impact
Groundwater	The project poses no risk of contamination to the groundwater.	No impact	No impact
Surface Water	Construction of a stream crossing will affect approximately 100 linear feet of a small, channelized stream. A Corps of Engineers permit would be required.	No impact	No impact
Floodplain	No regulated floodplains occur in the project area, according to the FEMA floodplain map.	No impact	No impact
IRP sites	No IRP sites occur in the project area.	No impact	No impact
Other hazardous waste sites	There is a slight risk of groundwater contamination from off-base sources. Monitoring during construction to protect workers and proper waste soil disposal may be required.	No impact	No impact

TABLE 2-1
Summary of Environmental Consequences of Alternatives Considered

Resource Area	Proposed Action	Harshman Road Alternative	No Action Alternative
Land Use	Land use in the airfield and adjacent lands will not be affected.	No impact	No impact
Soils	Temporary disturbance of 0.28 acre of ground. Best management practices would be implemented to reduce erosion during construction, with re-vegetation of exposed soil once project is completed.	No impact	No impact
Cultural Resources	No archaeological or historical resources would be affected by the project. The project will have no effect on the Wright Field historic district.	No impact	No impact
Air Quality	Minor localized impact during construction from equipment exhaust and fugitive dust; possible localized beneficial impact due to improved traffic flow during special events.	No construction impact; possible localized beneficial impact due to improved traffic flow during special events.	No impact
Socioeconomics	The project would require no additional staff, and would only have a minor effect on short term, construction-related employment. The project would not significantly affect income, employment, or the installation's contribution to the local economy.	No construction is required. This alternative would have no impact on income, employment, or the installation's contribution to the local economy.	No impact
Transportation	Beneficial impact through improved arriving/departing traffic flow during special events. Minor temporary impact to flow of traffic on Airway Road during construction.	Beneficial impact through improved arriving traffic flow during special events.	No impact
Utilities	No impact; project would be designed to avoid utilities.	No impact	No impact

3.0 Affected Environment

3.1 Introduction

The USAFM is located in an urban area. It is surrounded on the north, west and south by residential and commercial lands incorporated in the City of Riverside. The developed, operational portion of Area B borders the area immediately to the east.

The USAFM area is typical for a maintained open field, that is, mowed grass throughout. A six-foot high, chain link boundary fence topped with barbed wire surrounds the airfield. Immediately south of the airfield, a linear stream runs between the boundary fence and Airway Road. Scrub-shrub vegetation lines the stream corridor from approximately 20 feet north of Airway Road to the security fence. To the west, the edge of the Harshman Road pavement is approximately 15 feet from the boundary fence. USAF property (also mowed field surrounded by a boundary fence) occurs west of Harshman Road.

3.2 Natural Resources

3.2.1 Vegetation

The vegetation in the project area is primarily maintained grass (see photos in Exhibit 6). The entire airfield area is regularly mowed, as is the right-of-way along Airway Road and Harshman Road. These grassed areas are dominated by typical planted grass species such as fescue (*Festuca* spp.) as well as common invasive herbs such as dandelion (*Taraxacum officinale*) and narrow leaf plantain (*Plantago lanceolata*).

The 80-foot wide, linear swath of ordinary, scrub-shrub vegetation that occurs along the stream corridor north of Airway Road is typical for hedgerows in urban and suburban areas in the region. The dominant species in this area are common tree species including green ash (*Fraxinus pennsylvanica*), white ash (*F. americana*), blue ash (*F. quadrangulata*), elms (*Ulmus* spp.), eastern cottonwood (*Populus deltoides*), and box elder (*Acer negundo*). The dense shrub layer is dominated by amur honeysuckle (*Lonicera maackii*). This species often forms dense stands that nearly exclude other shrub species and limits the growth of ground layer vegetation at the site. The species is targeted for control in natural areas by the Ohio Department of Natural Resources and is considered an invasive species in the northeast and southeast according to the USDA "Plants" database.

3.2.2 Wildlife

The project area offers a typical urban/suburban habitat. Wildlife species that are typical to urban settings likely occur there, including birds such as European starling, American crow, cardinal, Carolina chickadee, and American robin, and small mammals such as field mice and groundhogs. It is unlikely that any species sensitive to human activities inhabit the area because of the adjacent urban land uses, limited habitat and airfield maintenance. No sensitive wildlife species occur in the project area.

3.2.3 Threatened and Endangered Species

The US Fish and Wildlife Service maintains a list of federally listed threatened and endangered species in Ohio by county. According to that list, Montgomery County is included in the range of the endangered Indiana bat (*Myotis sodalis*) and the candidate eastern massasauga rattlesnake (*Sistrurus catenatus*).

The Ohio Department of Natural Resources (ODNR), Natural Areas and Preserves website displays state listed species known from Montgomery County. According to this list, there are a number of state listed plant species that occur in the county. The site does not list animals known from the county.

The WPAFB Integrated Natural Resources Management Plan (INRMP) identifies the locations of threatened and endangered species that have been located at WPAFB through agency coordination and extensive field investigations (BHE Environmental, 2001). Correspondence with the Ohio Department of Natural Resources included in the INRMP indicates no known populations of state or federal listed species in the vicinity of the Wright Field. Field studies of WPAFB confirmed that no listed threatened or endangered species occur in the proposed project area.

3.2.4 Wetlands

Wetlands that are part of or have a surface water connection to streams or other surface waters (except isolated ponds) are regulated under Sections 401 and 404 of the Clean Water Act. Impacts to these wetlands must be permitted by the Corps of Engineers and the Ohio EPA (see also Section 3.3.2 Surface Waters).

All wetlands, regardless of their surface connections, are regulated pursuant to Executive Order 11990, Protection of Wetlands. This E.O. requires consideration of alternatives that do not impact wetlands and mitigation for any unavoidable wetland impacts.

An inventory of wetlands at WPAFB was performed in 2000 and is cited in the INRMP (BHE Environmental, 2001). The wetlands were identified according to the *Corps of Engineers Wetland Delineation Manual* (Department of the Army, 1987). According to the INRMP, no wetlands occur near the project area, or within the airfield. Site investigation for this EA by a CH2M HILL wetland scientist confirmed the absence of wetlands in the vicinity of either alternative site.

3.3 Water

3.3.1 Groundwater

The deep, porous glacial materials along the Little and Great Miami River valleys are part of an extensive aquifer system that extends into 13 counties. The groundwater elevation in this part of Montgomery County varies seasonally but is generally from 20 to 35 feet below the surface, according to monitoring wells and private well logs maintained by the Ohio Department of Natural Resources. According to the Miami Valley Regional Planning Commission water quality planning geographic information system, the Proposed Action site is located in an area of moderate groundwater pollution potential (MVRPC, 1998). The

Harshman Road site is in a high groundwater pollution potential area. These ratings are based on a number of physical parameters, including the depth to groundwater and the soil materials above the aquifer, which would make the aquifer more or less vulnerable to contamination from the surface.

The Miami Valley Buried Aquifer has been designated a Sole Source Aquifer by the USEPA, meaning it is the primary water supply for a significant portion of the population in the region. The Sole Source Aquifer Protection Program is authorized by Section 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 *et. seq*). Federally funded projects that have the potential to contaminate the designated sole source aquifer are subject to EPA review.

The City of Dayton's Mad River Wellfield, located along the Mad River northwest of Area B, is one of several wellfields that withdraw drinking water from the aquifer. Wells located on WPAFB within this area supply water to the base, as well. The Mad River Wellfield "wellhead protection area" is the area outlined in the City of Dayton's Well Field Protection Program, and endorsed by the Ohio EPA, within which preventing, detecting, and remediating ground water contamination is of greatest importance to protect the public water supply. The Mad River Wellfield wellhead protection area extends into Area B, including portions of the airfield. Neither the Proposed Action nor the Harshman Road Alternative sites are within this wellhead protection area.

3.3.2 Surface Water

Like wetlands, impacts to all "waters of the US" including small streams are also regulated under Sections 401 and 404 of the Clean Water Act and must be permitted by the Corps of Engineers and the Ohio EPA. The only surface water in the vicinity of the project is the linear stream that parallels Airway Road on the north. Although this stream parallels Airway Road much like a roadside drainage ditch, it is a regulated water of the US because it connects up-gradient, natural streams to the Mad River drainage and it contains an Ordinary High Water Mark, evidence of flow and a defined channel (Corps of Engineers, 1999). The stream's linear channel indicates that it was historically relocated. The stream was likely relocated when the airfield was constructed and/or when Page Manor and Airway Road were constructed in the 1940s and 1950s.

The stream is approximately 15 to 16 feet wide, from bank to bank. The drainage area of the stream at the Proposed Action site is approximately 1.8 square miles, estimated from the USGS topographic map (Exhibit 2). The drainage area includes the adjacent portion of the airfield and a small portion of Area B, but the majority of the area drained by the stream is south of Airway Road including Page Manor, I-675, other residential lands east of I-675, commercial development, and some vacant lands. A 48-inch diameter stormwater pipe outlets into the stream along its southern bank at the Proposed Action site.

The Ohio Environmental Protection Agency (OEPA) has developed the Qualitative Habitat Evaluation Index (QHEI) to evaluate the suitability of perennial streams as fish habitats. The QHEI assessment examines a number of stream characteristics and yields a score ranging from 0 to 100. Based on the QHEI score, a provisional Aquatic Use Designation is assigned in accordance with Rankin (1989). A score of 60 typically indicates a stream has the physical characteristics needed to support diverse macroinvertebrate and fish populations and attain

the Ohio EPA's "Warm Water Habitat" use designation. Scores of 46 to 60 are indicative of a "Modified Warm Water Habitat" and scores less than 46 typically indicate a Limited Resource Water (LRW). Scores greater than 75 are indicative of a possible Exceptional Warmwater Habitat (EWH).

A QHEI was completed by CH2M HILL for the stream in the project area (Exhibit 7). The score is 50.5, indicating a Modified Warm Water Habitat. This score reflects the modified conditions of the stream (previously channelized) as well as a dominance of sand and gravel substrate and the lack of important habitat features such as riffle and pool complexes. This characterization is typical for the reach of the stream that parallels Airway Road, that is, from Woodman Drive below the Proposed Action site to at least 2,400 feet upstream, where it crosses beneath Airway Road. Above that point, some segments of the stream and its tributaries have not been historically channelized and, based on a cursory review, have habitat features more typical of a Warm Water Habitat.

Although the stream may support a limited aquatic population, based on the QHEI assessment and the discharge of urban stormwater into the stream, it is likely that any aquatic biota that inhabit the stream are tolerant species typical of small urban streams.

3.3.3 Floodplain

All federal projects must consider and avoid impacts, wherever possible, to floodplains pursuant to Executive Order 11988, Floodplain Management. This E.O. requires consideration of alternatives that do not impact floodplains and mitigation for any unavoidable floodplain impacts.

Typically, floodplains subject to this regulation are those identified by the Federal Emergency Management Agency (FEMA). According to the FEMA Flood Insurance Rate Map that includes the project area, there are no mapped floodplains at either alternative site (Exhibit 8). The mapped floodplain limit occurs near the intersection of Harshman Road and Airway Road, approximately 4000 feet from the Proposed Action site and 500 feet from the Harshman Road Alternative site.

3.4 Hazardous Materials/Waste

3.4.1 Installation Restoration Program Sites

The WPAFB General Plan indicates that there are no hazardous materials storage sites in the project area (Woolpert, 2001).

There are no Installation Restoration Program (IRP) sites on the installation near the Proposed Action site. The Harshman Road site is located near an IRP site known as "Operable Unit 6." This unit comprises two former landfills and one clean earth fill. The nearest landfill to the Harshman Road Alternative site is located opposite (west of) Harshman Road from the site. No conflict between use of the gate and any management actions at the IRP site would be expected.

3.4.2 Other Hazardous Materials/Waste

A search of the online records of the Ohio Bureau of Underground Storage Tank Regulation (BUSTR) indicates six records of leakage from off-base underground storage tanks in the project vicinity. Four of these sites are located along Airway Road near the intersection of Harshman Road/Woodman Drive. Groundwater generally flows in a southwesterly direction in this area (ICI, 1995), and these sites are all located southwest of the alternative sites. Therefore, they are not likely to cause contamination of either alternative site.

However, two of the BUSTR-recorded sites are located near or up-gradient of the Proposed Action site. The first site is a former Kocolene Service Station at 6000 Airway Road (currently the "Maranatha" used auto sales lot), approximately 2500 feet to the east. This site is tributary to the unnamed stream that flows across the Proposed Action site. The BUSTR files indicate groundwater was contaminated from a leaking underground storage tank at this site by benzene, ethyl benzene, toluene, and xylene, the former two above action levels. Corrective action was initiated at this site in 1996. The BUSTR files further indicate that the contamination was localized on the service station site. Therefore, this site appears to pose no contamination risk to the stream or sediments at the Proposed Action site.

The second site is the Speedway fuel station at the corner of Spinning Road and Airway Road. The BUSTR records show one incident at the Speedway station for which a "No Further Action" letter was issued, indicating that the incident was properly investigated, remediated, and cleared. A second record indicates a suspected release from an underground storage tank in early 2001. Further review of the BUSTR files indicate that testing at the site showed no contamination of soil or groundwater at the site. Therefore, this site also appears to pose no threat of contamination of the Proposed Action site.

Finally, groundwater contamination by tetrachloroethene has been discovered in some portions of the Wright Field area that likely originated from a former dry cleaning business south of Airway Road. The plume is small and of low concentration, and occurs approximately 20 feet below ground elevation. It is located approximately 300 feet east of the Proposed Action site. The Environmental Management Office is monitoring the plume by way of several monitoring wells.

3.5 Land Use

The airfield area is designated as "open space" in the existing land use plan as shown in the WPAFB General Plan (Woolpert, 2001). Future land use plans indicate no change in land use in this area.

The triangular airfield, developed in the 1940s, is only partially suitable for aircraft operations. The southern, east-west runway is used once or twice annually by the museum when new aircraft acquisitions are flown to the base, as well as during the annual World War I historic aircraft "fly-ins." During these times, an open "clear zone" must be maintained around the runway. Within a "clear zone," human and animal activities and the height of obstructions are limited within a specified distance of the runway for aircraft safety.

The other two runway/taxiways that make up the triangle are no longer usable for aircraft operations. The main museum buildings, normal visitor parking and outdoor aircraft exhibits are located along the western runway/taxiway. The eastern side is incorporated into the operational portion of Area B and is separated from the museum area by a security fence. The former eastern runway/taxiway pavement is partially used for the Loop Road.

The southern portion of the airfield is also used as a target field for laser weapons research and development by the Air Force Research Laboratory. There are several "targets" along the south side of the accelerated runway. This target field is typically used at night. To avoid conflicts between users, activities at this portion of the airfield are coordinated between the USAFM and the Air Force Research Laboratory.

Airway Road is bordered to the south by the military family housing area known as Page Manor (Exhibit 3). Page Manor extends east and west of Spinning Road, except for the Page Manor Shopping Center and "Speedway" fuel station at the southeast corner. Adjacent to Page Manor to the west to Woodman Drive is the Airway Shopping Center, several fast-food restaurants, fuel stations and other commercial interests.

USAF property occurs along both sides of Harshman Road near the Harshman Road gate site.

3.6 Soils

Soils at the Proposed Action location have been mapped by the Natural Resources Conservation Service (formerly the Soil Conservation Service) as "Fox-Urban Land complex, gently sloping," and at the Harshman Road Alternative location as "Miamian-Urban land Complex, undulating." These soils are classified as "urban land complexes" because of historic disturbance of the soil profile by land development. Both soil types are typically moderately well drained to well drained, and underlain by calcareous glacial till. Surface runoff is rapid. The upper portion of the soil profile is sandy clay loam to clay loam, with loam or sandy loam in the lower portion of the profile. As urban land complexes, these soils are generally not suitable for farming, but their physical properties make them generally suitable to roadway development (Davis *et al*, 1976).

3.7 Cultural Resources

The WPAFB Cultural Resources Management Plan (CRMP) contains the most complete inventory of archaeological, pre-historic and historic resources at the base (IT Corporation, 2001). A cultural resources survey of the project area conducted in 2000 found no cultural resource sites in the project area. The historic disturbance associated with construction of the airfield, roadways, and land development minimize the likelihood that any intact resources remain at either alternative location.

According to the CRMP, the Area B airfield is eligible for listing on the National Register of Historic Places as part of the Army Air Forces Historic District because it contains one of the first, permanently paved airfields in the US, and because of the research and development that was performed in its facilities before and during WW II. The most significant structures in this historic district are the hangars and other research structures that are now

incorporated in the operational portion of Area B. The primary "viewshed" that is important to the historic district is that from Springfield Street. Both of the alternative sites are located on the opposite side of the historic district from Springfield Street.

There are no historic structures within 1,000 feet of either alternative. None of the buildings in Page Manor are eligible for the National Register of Historic Places (IT Corporation, 2001).

According to the US National Park Service's "National Register Information System," there are no other buildings or sites in the project vicinity that are listed on the National Register.

3.8 Air Quality

Under the Clean Air Act, air quality monitoring is performed in the area of WPAFB by the Regional Air Pollution Control Agency (RAPCA). Air quality is monitored in the area for six criteria pollutants: carbon monoxide, lead, nitrogen oxide, ozone, particulate matter, and sulfur dioxide. The proposed project area has been designated as an attainment area for all National Ambient Air Quality Standards (NAAQS). There are no Federal Class I Prevention of Significant Deterioration areas (having degradation of ambient air quality), including strictly limited visibility, located in the Dayton region (40 CFR 81.424).

3.9 Socioeconomics

WPAFB is the largest employer in the region. WPAFB has a work force numbering approximately 24,000 people, and employees nearly one in twelve people in the greater Dayton area. It is the fifth largest employer in the state of Ohio and the largest employer at a single location. The base has an annual payroll of approximately $1.2 billion.

The USAFM hosts an estimated 1.5 million visitors annually.

3.10 Transportation

Three main roadways under the jurisdiction of the City of Riverside border the proposed project area: Airway Road, Harshman Road, and Springfield Street (Exhibit 2). All three streets are considered major arterial roadways.

Airway Road is a four-lane roadway with a posted speed limit of 45-mph (see photos, Exhibit 6). The Spinning Road intersection at Airway Road is a "T" intersection, with left turn lanes east and west bound along Airway Road and along Spinning Road. The traffic signal includes left turn arrows for westbound Airway Road and northbound Spinning Road. Airway Road has unlimited access (although current security measures have blocked some access points) to residences and commercial interests along its south side. It is entirely bordered by WPAFB lands along the north side.

Harshman Road is a four-lane roadway, with a posted speed of 45 miles per hour, undivided at the existing gate location but divided by a concrete center barrier approximately 600 feet north of the gate. Beginning at the barrier, Harshman Road curves substantially to the east and grades upward to the separated grade interchange at

Springfield Street. Harshman Road is a limited access roadway north of Airway Road because it is bordered by military lands along both sides and because of the elevation of the roadway over Springfield Street.

Springfield Street is a four-lane, undivided, unlimited access roadway east of Harshman Road. It has a short (less than 100 feet long) right turn lane approaching the museum entrance for eastbound traffic. The entrance road is two lanes wide, with a left turn only and a right turn/through lane at the intersection with Springfield Street.

All visitor traffic must currently enter the museum through the entrance on Springfield Street. Interstate traffic to the USAFM exits I-675 at Airway Road/Colonel Glenn Highway, southeast of the museum. This traffic travels west approximately two miles along Airway Road to Harshman Road, then north approximately one mile to Springfield Street.

According to the Transportation Improvement Plan (TIP) for the region, there are no transportation improvement projects planned along Airway Road, Harshman Road or Springfield Street in the vicinity of the museum (Miami Valley Regional Planning Commission, 2001).

3.11 Utilities

There are a number of underground utilities in the Airway Road vicinity. There is an underground electrical line enclosed in a duct that crosses beneath the stream at the Proposed Action site. This electric line is approximately ten to twelve feet below the surface. There is also a natural gas supply line owned by the Vectren Corporation extending east to west across the Proposed Action site parallel to Airway Road. The gas line is only approximately 24 inches below the surface at this location.

Water and sewer lines that serve Page Manor run along the south side of Airway Road (Woolpert, 2001). Overhead electric lines are located at the Spinning Road intersection to operate the existing signals. Other electric lines to serve Page Manor are offset approximately 90 feet south of Airway Road.

There are no known utilities along Harshman Road north of Airway Road.

4.0 Environmental Consequences

4.1 Introduction

The primary purpose of an EA is to identify potential impacts of a major federal action on the environment. Identification of potential impacts in this EA included consideration of both the context and the degree of the impact. Where feasible, distinctions are made between short-term, long-term, negligible, and adverse impacts. A negligible impact may be inconsequential or be unlikely to occur; an adverse impact would have negative consequences. If the current condition of a resource is improved or an undesirable impact is lessened, the impact is considered beneficial. Finally, a "no impact" determination is made when the proposed action does not noticeably affect a given resource. Where appropriate, cumulative impacts are discussed. Cumulative impacts are those likely to occur over a long period of time or as a result of combining the expected impacts of two or more unrelated actions. This section presents the potential environmental consequences at the project site.

4.2 Natural Resources

4.2.1 Vegetation

Proposed Action

The Proposed Action would result in a minor impact to vegetation at the project site. Approximately 85% of the site (10,000 square feet or 0.23 acre) supports ordinary scrub-shrub vegetation that would be removed. The remainder is grassed right-of-way. The loss of this vegetation would not impact the diversity of plant life or habitat in the project vicinity, particularly because of the dominance of the invasive shrubs at the site. A 20-feet wide clear zone is maintained along the north side of Airway Road and the roadway is straight in the project vicinity. Therefore, no removal of vegetation, beyond that needed for construction of the gate, stream crossing and access lane, would be necessary to maintain safe sight distances for vehicles entering the intersection from the gate.

Areas of the site that are temporarily disturbed during construction would be initially re-vegetated by grass seeding, to a condition comparable to the Airway Road right-of-way. The base natural resources manager must approve re-vegetation specifications in advance, in accordance with the WPAFB Integrated Natural Resources Management Plan (BHE Environmental, 2001). After final construction of the permanent crossing, shrub vegetation will be replaced to the extent possible in accordance with the Ohio EPA Section 401 Water Quality Certification conditions for Nationwide Permit 14 (OEPA, 2002). The re-growth of some of the scrub-shrub vegetation around the perimeter of the site would also naturally occur over time.

Harshman Road Alternative
The Harshman Road Alternative site is completely dominated by mowed grass, both in the right-of-way and in the WPAFB property adjacent. No change in this vegetation would occur with this alternative.

No Action Alternative
No vegetation changes would occur under this alternative.

4.2.2 Wildlife

Proposed Action
The wildlife habitat that would be affected by the Proposed Action is 0.23 acre of ordinary, scrub-shrub vegetation that typical of hedgerows in urban and suburban areas in the region. This minor loss of habitat would cause no noticeable change in the wildlife populations in the project vicinity.

Harshman Road Alternative
No impact to wildlife habitat would occur with this alternative.

No Action Alternative
This alternative would cause no impact to wildlife populations.

4.2.3 Threatened and Endangered Species

Proposed Action
No threatened or endangered species or critical habitats occur in the project vicinity. Therefore, this alternative would not impact any threatened or endangered species populations. In accordance with base policy, trees will be removed between 15 September and 15 April to avoid potential impact to the Indiana bat, a Federally listed endangered species that occurs in other areas of WPAFB.

Harshman Road Alternative
No threatened or endangered species or critical habitats occur in the project vicinity. Therefore, this alternative would not impact any sensitive species populations.

No Action Alternative
This alternative would not affect any threatened or endangered species.

4.2.4 Wetlands

Proposed Action
No wetlands would be affected by this alternative.

Harshman Road Alternative
No wetlands would be affected by this alternative.

No Action Alternative
No wetlands would be affected by this alternative.

4.3 Water

4.3.1 Groundwater

Proposed Action
This alternative would require only shallow excavation of the stream channel and banks to install the temporary culvert, and to install the permanent concrete arch culvert over the stream. Other construction would be at the ground surface (pavement) and shallow holes (fence posts). Excavation would not exceed 3 feet below the stream channel bottom.

Correspondence with the USEPA Region 5 sole source aquifer coordinator confirms that the project is not likely to adversely affect the volume or quality of water in the aquifer, and no project review by USEPA is required (Exhibit 9). Further, the site is not located within Mad River Wellfield wellhead protection area. Therefore, no impacts to groundwater would occur from this alternative.

As recommended by USEPA for any projects over the aquifer, an emergency spill plan would be in effect during construction. WPAFB has developed a Spill Prevention and Response Plan that includes response procedures in the event of a spill of petroleum products or other hazardous materials. The WPAFB Stormwater Pollution Prevention Plan would also be in enforced. This plan specifies the use of construction best management practices to avoid contamination of surface and groundwater, including proper location of equipment staging areas and maintenance. A site specific erosion control and pollution prevention plan will be developed.

Harshman Road Alternative
This alternative would not include any construction. No impacts to groundwater would occur from this alternative.

No Action Alternative
No impacts to groundwater would occur from this alternative.

4.3.2 Surface Water

Proposed Action
The Proposed Action includes the temporary installation of a corrugated metal culvert, to be replaced by a pre-cast, concrete arch structure, to cross the stream north of Airway Road. This crossing would impact approximately 100 linear feet (1600 square feet, 0.04 acre) of the stream. The impact will include the disturbance of the streambed and banks for culvert placement and removal, construction of the concrete abutments that will support the arch, installation of rock channel protection to stabilize the bed and banks against erosion of the structure (the current streambed is composed of loose sand and gravel), and removal of adjacent scrub-shrub vegetation.

The stream has historically been channelized. The physical habitat features of the stream are typical for a very shallow, uniform, urban stream. The stream is subject to the discharge of urban stormwater at the project site. Biotic communities in the stream are likely composed of tolerant species typical for this habitat.

Impacts to waters of the US are regulated under the Clean Water Act, and require a permit from the Army Corps of Engineers. The Corps of Engineers has issued a number of Nationwide Permits for actions that are considered to have no more than minimal effect on the environment. Roadway crossings that impact less than one-half acre of waters of the US are typically authorized by the Corps of Engineers under Nationwide Permit 14. This permit requires pre-construction notification of the Corps of Engineers if greater than one-tenth acre of waters or special aquatic sites, such as wetlands or riffle and pool complexes, are impacted. Further, to qualify for this permit, the project cannot cause more than minimal changes in the hydraulic flow characteristics of the stream, impair aquatic life movement, increase flooding, or cause more than minimal degradation of water quality.

It is anticipated that the Corps of Engineers will authorize this project under Nationwide Permit 14. The Proposed Action would affect less than one-tenth acre of the stream, and no wetlands or riffle/pool complexes. A separate Section 401 Water Quality Certification from Ohio EPA is not required for projects that affect less than 200 linear feet of a stream and comply with the Section 401 conditions (OEPA, 2002). These conditions include minimizing impact to the stream and adjacent vegetative buffer, restoring disturbed vegetative buffer with native species as soon as possible after construction, implementation of sediment and erosion control best management practices, and maintenance of a natural streambed through the crossing (the general specification for culverts is to bury the lower 10% of the culvert beneath the streambed elevation). The WPAFB Stormwater Pollution Prevention Plan, which includes construction best management practices to reduce surface water pollution, would be enforced during construction.

The temporary culvert would be of sufficient size to maintain the current hydraulic flow characteristics of the stream. The lower 10% of the culvert would be buried below the streambed elevation to allow for natural substrate through the culvert, as specified by the Ohio EPA. The ultimate replacement with the proposed arch structure would allow re-establishment of a natural stream substrate. Although rock will be added to stabilize the structure, it would be installed to maintain a low flow channel and the continuity of aquatic life movement beneath the structure. The addition of the rock may actually improve the stream habitat slightly by adding stability to the substrate. The removal of vegetation would expose the stream to direct sunlight, which could possibly cause a slight increase in water temperature during the summer months. This impact would be largely mitigated by the proposed structure, which would shade the stream. Shrub vegetation will be replaced to the extent possible without impairing safe access to the gate.

The project would not cause a significant increase in the area of impermeable surface or volume of stormwater runoff within the stream's drainage area. Provided sediment and erosion control best management practices are implemented, in accordance with the WPAFB Storm Water Management Plan specifications, the Proposed Action would have a negligible impact on water quality.

WPAFB will contact the Corps of Engineers to confirm that the project meets all conditions of Nationwide Permit 14 prior to construction.

Harshman Road Alternative
No surface waters would be affected by this alternative.

No Action Alternative
No surface waters would be affected by this alternative.

4.3.3 Floodplain

Proposed Action
No floodplains would be affected by this alternative. The temporary and permanent culverts would be designed to not impede flow and maintain the capacity of the channel, as recommended by the City of Riverside engineer (Exhibit 5).

Harshman Road Alternative
No floodplains would be affected by this alternative.

No Action Alternative
No floodplains would be affected by this alternative.

4.4 Hazardous Materials/Waste

Proposed Action
This alternative would not cause contamination of the soil, groundwater or surface water, provided construction best management practices are implemented, including proper location of vehicle staging areas and maintenance. The WPAFB Spill Prevention and Response Plan includes response procedures to contain petroleum products or other hazardous materials in the event of a spill and minimize environmental contamination. Avoidance of known underground utility lines would also reduce the potential for hazardous materials contamination from the Proposed Action.

While some leakage has been recorded at underground storage tanks in the vicinity of the Proposed Action site, review of BUSTR files indicate that leakage is confined to the service station sites and that it is unlikely that the Proposed Action site has been contaminated by these sources.

The known plume of tetrachloroethene located some 300 feet east of the Proposed Action site may pose a slight risk. Based on investigations by the Environmental Management Office, excavation for the Proposed Action would not likely encounter this contamination because the area of contamination is small and it is of very low concentration . Nevertheless, soil and groundwater should be monitored during construction for this and other hazardous materials that may occur. If any is identified, the WPAFB Environmental Management Office will determine the level of contamination, personal protective equipment that may be necessary to protect workers from contamination, and the proper containment, shipping and disposal in accordance with federal and state regulations.

Harshman Road Alternative
No construction is required for this alternative. Therefore, no hazardous materials would be encountered with this alternative.

No Action Alternative
No construction is required for this alternative. Therefore, no hazardous materials would be encountered with this alternative.

4.5 Land Use

Proposed Action

The Proposed Action is compatible with the existing and planned land use of the airfield. The gate would be constructed such that the current fence height would be maintained, and there would be no additional obstructions into the operational clear zone surrounding the runway. Therefore, the project would not change use of the runway for occasional incoming aircraft from an aircraft safety perspective.

The USAFM coordinates all activities in the airfield with the Air Force Research Laboratory. Therefore, no scheduling conflict between museum events that would use the gate and use of the airfield by aircraft or for the laser weapon research is anticipated.

As this alternative would only be used on an occasional basis, it is not anticipated to cause a change in land use in adjacent areas.

Harshman Road Alternative
This alternative is essentially identical to the Proposed Action. Events that would use the gate must be coordinated with use of the runway by aircraft and with use of the area by the Air Force Research Laboratory. The height of the fence would remain constant with this alternative, and no new obstructions would be established within the aircraft clear zone.

No Action Alternative
No impact to land use would occur with this alternative.

4.6 Soils

Proposed Action
The WPAFB Stormwater Management Plan requires that best management practices be implemented to reduce impacts during construction for all projects that result in vegetation removal and soil disturbance (Pacific Environmental Services, 1994). Post construction, all sites must be restored through the replacement of topsoil (to the extent possible) and seeding.

Excavation for installation of the arched stream crossing, entrance road pavement, utilities, and fence/gate posts would disturb approximately 12,000 square feet (0.28 acre) of soil. A sediment and erosion control plan would be developed, in accordance with Air Force and WPAFB construction standards. The intent of the soil erosion control plan is to prevent the loss of soil during construction by storm water runoff and/or wind erosion, and prevent sedimentation of the receiving stream and air pollution with dust and particulate matter. Best management practices for soil erosion control include the installation of sediment control fencing along the limits of construction, temporary stabilization of soils with mulch or erosion control blankets, and re-establishment of ground cover vegetation by grass seeding as soon as possible after construction. Excess excavated soil would be hauled off-site to an upland disposal location. Topsoil would be stockpiled for reuse if possible.

Under Phase II of the National Pollutant Discharge Elimination System (NPDES) regulations, scheduled to be implemented in February 2003, authorization by the Ohio EPA

is required for projects that cause the disturbance of more than one acre of land surface. The area of impact of the Proposed Action would be considerably less than one acre. Therefore, the filing of an NPDES "Notice of Intent" is not required for this project.

Harshman Road Alternative
This alternative would not require construction and therefore would not affect any soil resources.

No Action Alternative
This alternative would not require construction and therefore would not affect any soil resources.

4.7 Cultural Resources

Proposed Action
No archeological resources would be affected by the Proposed Action.

The Proposed Action would affect no historic structures eligible for or listed on the National Register of Historic Places, and would not cause a change in land use in the Army Air Forces Historic District. The project would be located at the outer limit of the historic district. Coordination with the Base Historic Preservation Officer confirms that, because the Proposed Action would be located on the opposite side of the historic district from Springfield Street, it would not affect the view and context of the most significant historic structures.

Therefore, the Proposed Action would have no impacts to cultural resources.

Harshman Road Alternative
No archeological resources would be affected by this alternative.

Like the Proposed Action, this alternative would occur at the outer limit of the Army Air Forces Historic District. It would require no new construction, would affect no historic structures eligible or listed on the National Register of Historic Places, and would not cause a change in land use in the historic district. Therefore, this alternative would have no impacts to cultural resources.

No Action Alternative
This alternative would not affect any cultural resources.

4.8 Air Quality

Proposed Action
The Proposed Action does not include adding through lanes to any roadways, and would not cause an increase in traffic along the existing roadways. Therefore, an air quality analysis was not conducted. The Proposed Action is intended to improve the efficiency of traffic flow to and from the museum during special events. Consequently, the Proposed Action may have a general positive impact on the local air quality during those events by improving traffic flow at intersections and the museum entrance. Improved traffic flow would reduce congestion and the length of time that vehicles are idling.

A minor localized impact to air quality may occur in the area of construction, due to the exhaust of heavy equipment and fugitive dust during earthwork. Fugitive dust impacts will be mitigated in accordance with standard WPAFB practices for controlling wind erosion during construction, primarily by watering dry soil surfaces and restoring vegetative cover as soon as possible after construction. As the construction period would be a matter of weeks, there will be no long-term impact to local air quality.

Since the area is currently designated attainment, a detailed conformity analysis is not required. Additionally, the emissions generated during construction would be short term and temporary, and would not exceed the *de minimus* levels outlined in Title 40 Code of Federal Regulations 93.153 (b)(1).

Harshman Road Alternative
Like the Proposed Action, this alternative would also not cause an increase in vehicular traffic, and does not warrant an air quality analysis. It would improve the efficiency of traffic flow to the museum from the south during special events. Therefore, some localized improvement in air quality would result. Air quality impacts associated with exiting, southbound traffic would be the same as the No Build Alternative.

No alteration of the gate would be required. Therefore, this alternative would not have any construction-related air emissions.

No Action Alternative
This alternative would not change traffic flow to the museum. Long queuing and severe congestion of vehicles at intersections and at the museum entrance during special events would continue. The no action alternative would do nothing to alleviate traffic congestion that causes temporary, localized degradation of air quality.

This alternative would have no construction-related air emissions.

4.9 Socioeconomics

4.9.1 Employment

Proposed Action
Implementation of the Proposed Action would not have a significant impact on the total labor force, employment, or unemployment in the WPAFB area because the estimated number of jobs generated during construction would be less than one percent of the total employment at WPAFB. In addition, there would be no long-term impact on WPAFB employment levels because the current museum staff would man the gate.

Harshman Road Alternative
This alternative would require no construction and therefore would generate no construction-related employment. The gate would be manned by the existing museum staff, and therefore would not affect employment at WPAFB.

No Action Alternative
This alternative would require no construction and therefore would generate no construction-related employment. This alternative would cause no change in employment at WPAFB.

4.9.2 Income

Proposed Action
Economic effects of the Proposed Action would be limited to the temporary effects of construction. Because construction employment associated with the Proposed Action would be temporary and minor, there would be no appreciable effect on the income generated in the local economy.

Expenditures for construction-related materials and supplies would have a small short-term beneficial effect on the economy of the surrounding area. Businesses near WPAFB, such as gas stations and fast-food restaurants, would generally benefit from additional sales to construction workers.

Harshman Road Alternative
Under the Harshman Road Alternative, no construction-related income would be generated and there would be no change to income levels.

No Action Alternative
Under the no action alternative, no construction-related income would be generated and there would be no change to income levels.

4.9.3 Installation Contribution to the Local Economy

Proposed Action
The construction costs associated with the Proposed Action would be less than $250,000, and would be less than one percent of WPAFB's annual overall impact on the economy. The associated labor costs are also less than one percent of WPAFB's total payroll. The project will not affect the Base's contribution to the local economy.

Harshman Road Alternative
Because there would be no construction or employment change under the Harshman Road Alternative, there would be no impact to the Base's contribution to the economy.

No Action Alternative
Because there would be no construction or employment change under the no action alternative, there would be no impact to the Base's contribution to the economy.

4.10 Transportation

Proposed Action
The gate would be located at an existing, signalized, three-way intersection. Under normal circumstances, the gate would be closed and the intersection would continue to operate as it currently does, with no change in traffic movements or signal configuration.

When the gate is opened during special events, this alternative would add the northern approach to the intersection, accommodating full movement ingress and egress from Airway Road. This alternative would reduce local traffic congestion during special events along Springfield Street and Harshman Road by providing a more direct route to I-675 and points south. It may also reduce the length of time that the local roadways are congested by vehicles leaving after large special events.

Minor delays of local traffic at the intersection of Airway and Spinning Roads may occur when the gate is open due to the queuing of traffic entering the gate. The existing configuration of Airway Road (a four-lane roadway with center turn lane) will minimize this impact. The majority of the traffic entering the gate will approach from the east (I-675 interchange). Queuing of westbound traffic entering the gate could occur in the right lane, leaving the left lane open to through traffic. As it does currently, the center turn lane can accommodate westbound, left-turning traffic to the Page Manor Shopping Center and Spinning Road. Queuing of eastbound traffic entering the gate could be partially accommodated in the center turn lane; queuing beyond the length of the center lane could occur in the left lane, leaving the right lane open to through traffic. All traffic exiting the gate would queue within the base, with no effect on the public thoroughfares.

Initially, traffic will be managed at the intersection by Security Forces, as needed, to minimize traffic delays. Upgrading the signal would minimize delays through proper signal phasing, based on the volume of traffic, and the provision of left turn lanes and signals in all directions. In the event of a large volume of vehicles entering or exiting the gate at once, the signal could be manually operated for the most efficient movement of traffic.

Minor temporary impacts may occur along Airway Road as the normal flow of traffic is interrupted during construction.

Harshman Road Alternative
This alternative would provide a more direct ingress to the airfield/parking area from I-675. Therefore, it would improve the flow of traffic arriving at the airfield and reduce congestion along Springfield Street from arriving traffic.

Minor delays of local traffic along Harshman Road may occur when the gate is open due to the queuing of traffic entering the gate. The existing configuration of Harshman Road (a four-lane roadway) will minimize this impact. All traffic entering the gate will approach from the south. No left turn into the gate will be permitted. Queuing of traffic entering the gate could occur in the right lane, leaving the left lane open to through traffic.

This alternative would not accommodate a left turn onto Harshman Road toward Airway Road. Therefore, it would not improve the flow of traffic returning to I-675. All traffic would still exit to Springfield Street, and return to I-675 along the current route.

No Action Alternative
This alternative would not change the current traffic patterns. Significant traffic delays and queuing along Springfield Street and possibly along other nearby roadways would likely occur during special museum events.

4.11 Utilities

Proposed Action
Underground utility lines are known to occur in the vicinity of this site. Two lines are particularly important. First, a shallow, Vectren Corporation gas pipeline runs parallel to Airway Road at the Proposed Action site. Given that it is not deeply buried below ground, this pipeline may be liable to damage from vehicles passing across it to enter the gate. This pipeline will be protected by placement of a concrete pad over the pipeline through the

project area. This approach is acceptable to Vectren (confirmed through correspondence by the 88 ABW/CE) and would be designed in cooperation with Vectren engineers. The second line is the buried electric line that crosses the stream at the Proposed Action site. This electric line is deeply buried and already enclosed in a protective duct. Further, the footings for the permanent crossing will be reinforced to protect this line. Consequently, no impacts to this line will result from the proposed project.

In advance of any earthwork, other utility lines would be accurately located in cooperation with utility companies to insure that underground utilities and worker safety would be protected. The project will be designed as needed to avoid and minimize impact to these other utilities.

The redesign of the signals at this intersection would be required. Adequate electrical service already exists in the area for the Proposed Action. No additional electric service lines would be required. According to correspondence with the City of Riverside engineer, the existing poles may be used to suspend new signals, although some would require reconditioning.

Harshman Road Alternative
This alternative would affect no utilities.

No Action Alternative
This alternative would affect no utilities.

4.12 Unavoidable Adverse Effects

No unavoidable adverse environmental effects from the implementation of the Proposed Action, Harshman Road Alternative or the no action alternative have been identified through this EA.

4.13 Relationship of Short-term Uses and Long-term Productivity

The preferred alternative would not affect the long-term productivity of the environment; no significant environmental impacts or depletion of natural resources have been identified through this EA.

4.14 Irreversible and Irretrievable Commitments of Resources

The Proposed Action would require an investment of energy and construction materials. These commodities are abundant and their use for the Proposed Action would not affect their availability to other users in the area. No irreversible or irretrievable commitment of natural resources has been identified through this EA.

4.15 Cumulative Impacts

According to the Transportation Improvement Plan for Montgomery County (MVRPC, 2001), there are no transportation improvement projects planned in the vicinity of the Proposed Action. Therefore, no cumulative impacts to the transportation system would occur as a result of the Proposed Action.

No other land development or transportation projects would result from the implementation of the Proposed Action that would lead to a cumulative impact to the resources in the project area. The occasional use of the gate is not expected to result in any land use changes in the project area.

5.0 List of Preparers

Robert Hook, Environmental Planner, CH2M HILL, Dayton Ohio

Howard Saxion, Ph. D., Sr. Environmental Scientist, CH2M HILL, Oklahoma City, Oklahoma

John Koerner, Assistant Program Manager, Versar, Inc., Dayton, Ohio

6.0 List of Agencies and Persons Consulted

Name	Office	Subject
Earl Bowen	USAF Museum, WPAFB	Project Purpose and Need, Land Use
Jan Ferguson	88 ABW/EM, WPAFB (Base Historic Preservation Officer)	Cultural Resources
Charles Jones	City of Riverside, Ohio (Interim City Manager)	Transportation Issues
Teresa Lacy	USAF Museum, WPAFB	Project Purpose and Need, Alternatives
Thomas Perdue	88 ABW/EMO, WPAFB (Project EIAP Manager)	Project Scope
Al Riestenberg	88 ABW/CECW, WPAFB	Project Design
William Ryan	US EPA, Region 5	Sole Source Aquifer regulations
Sherm Siegal	88 ABW/EMO, WPAFB	Hazardous Materials
Mike Skomrock	88 ABW/CECW, WPAFB	Project Design

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Environmental Assessment

New Security Gate, US Air Force Museum

Wright-Patterson Air Force Base, Ohio

March 2003

Prepared by:

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Wright-Patterson Air Force Base, Ohio 45433-5332
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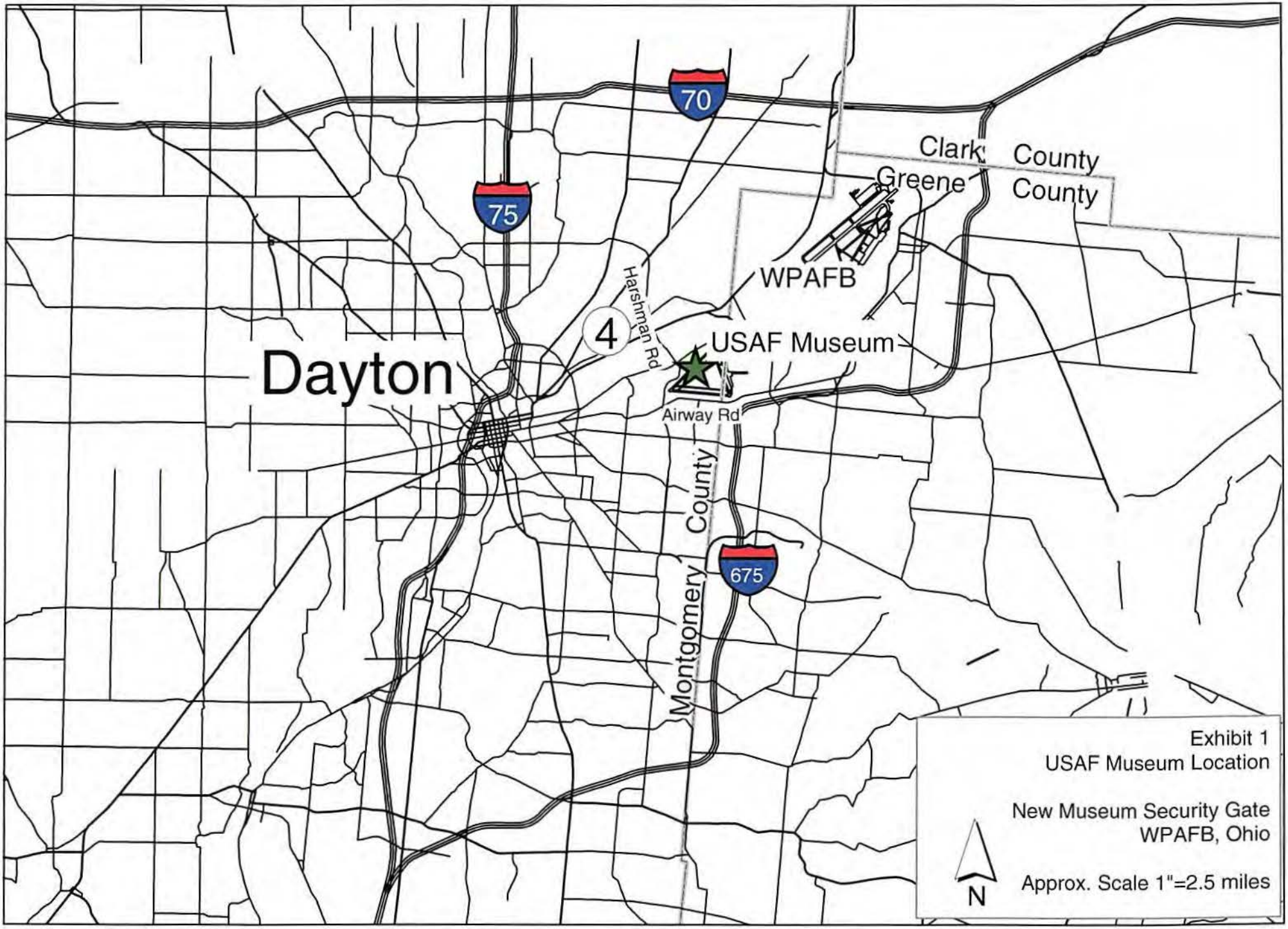
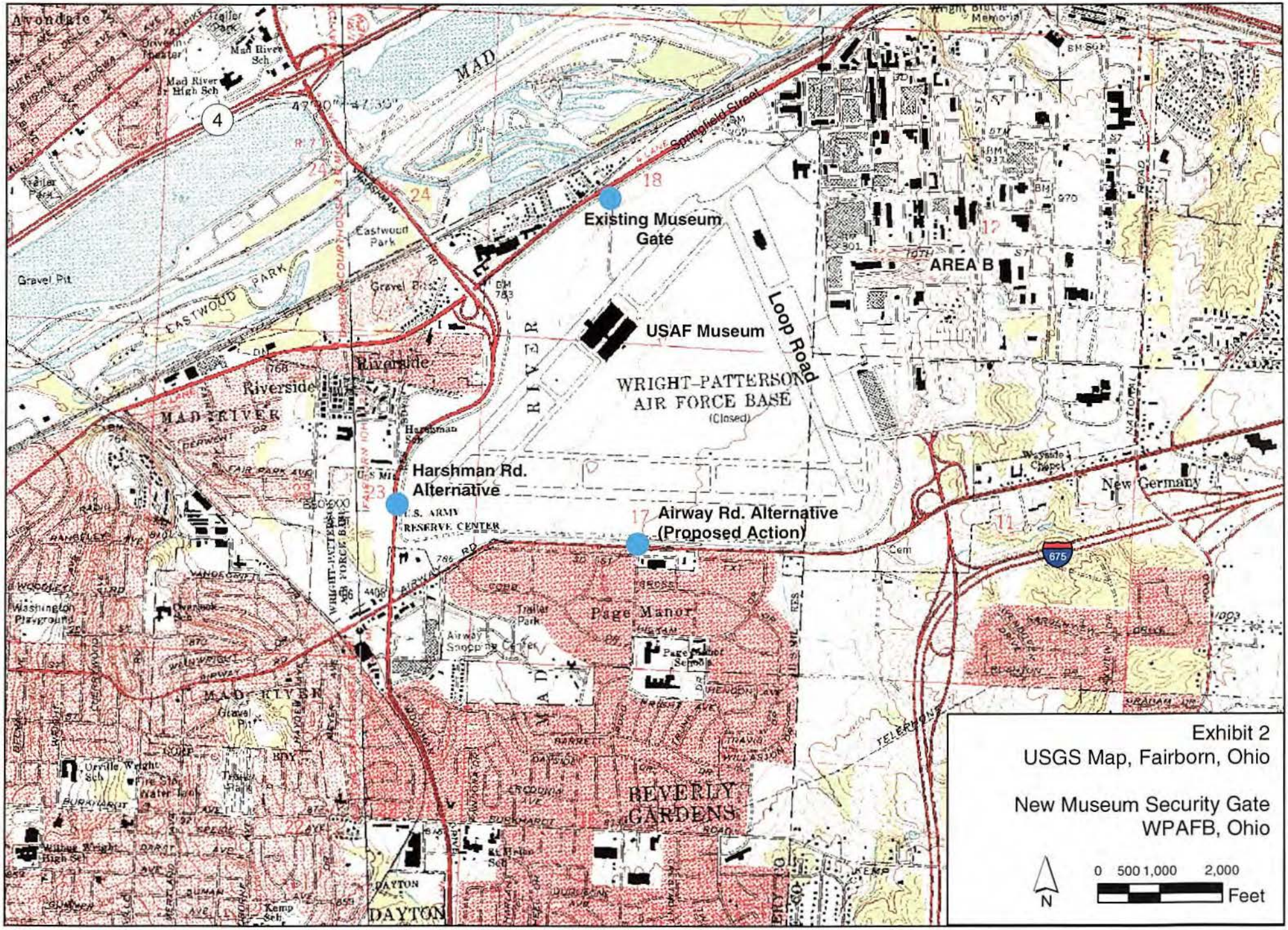
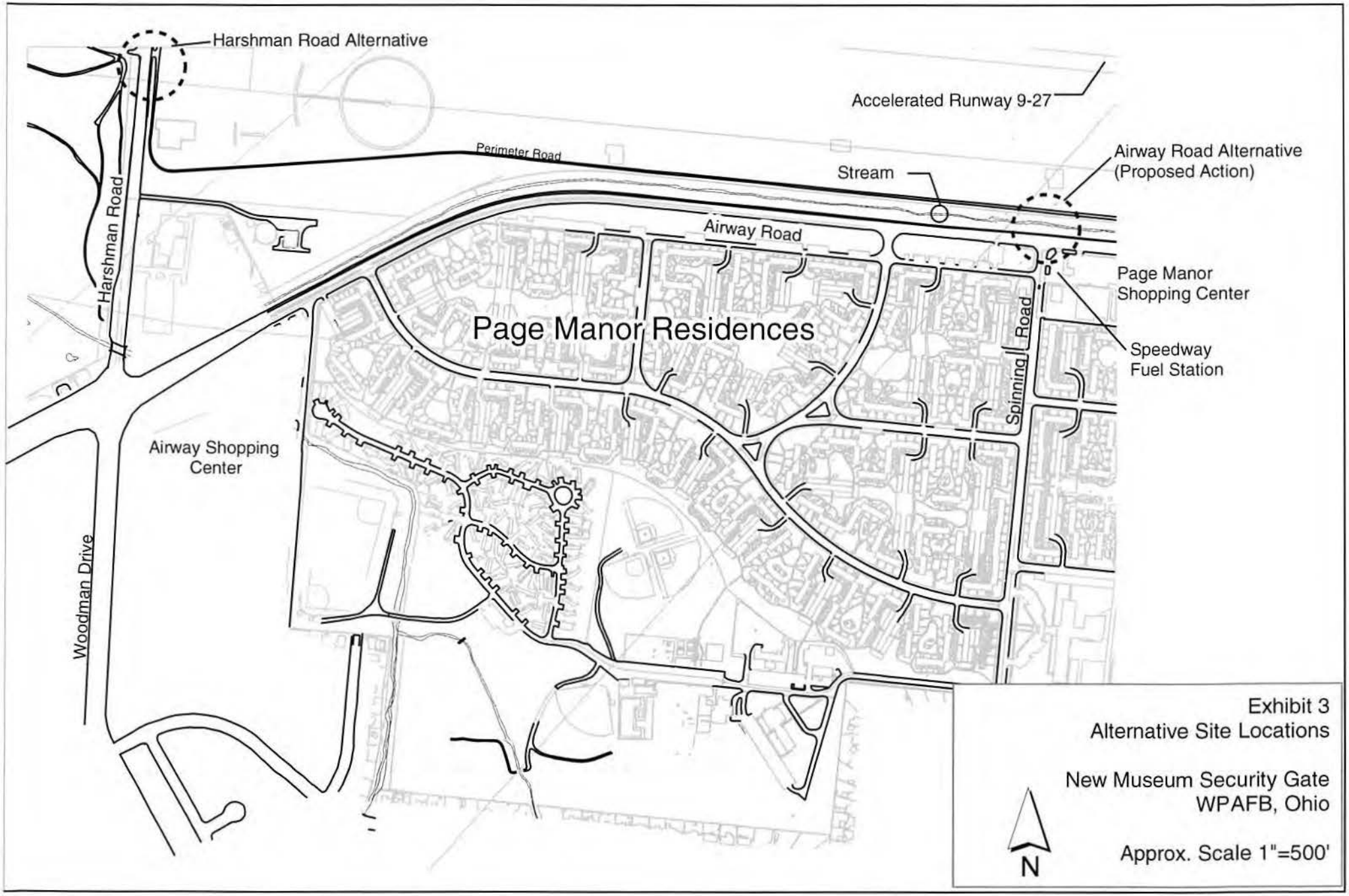
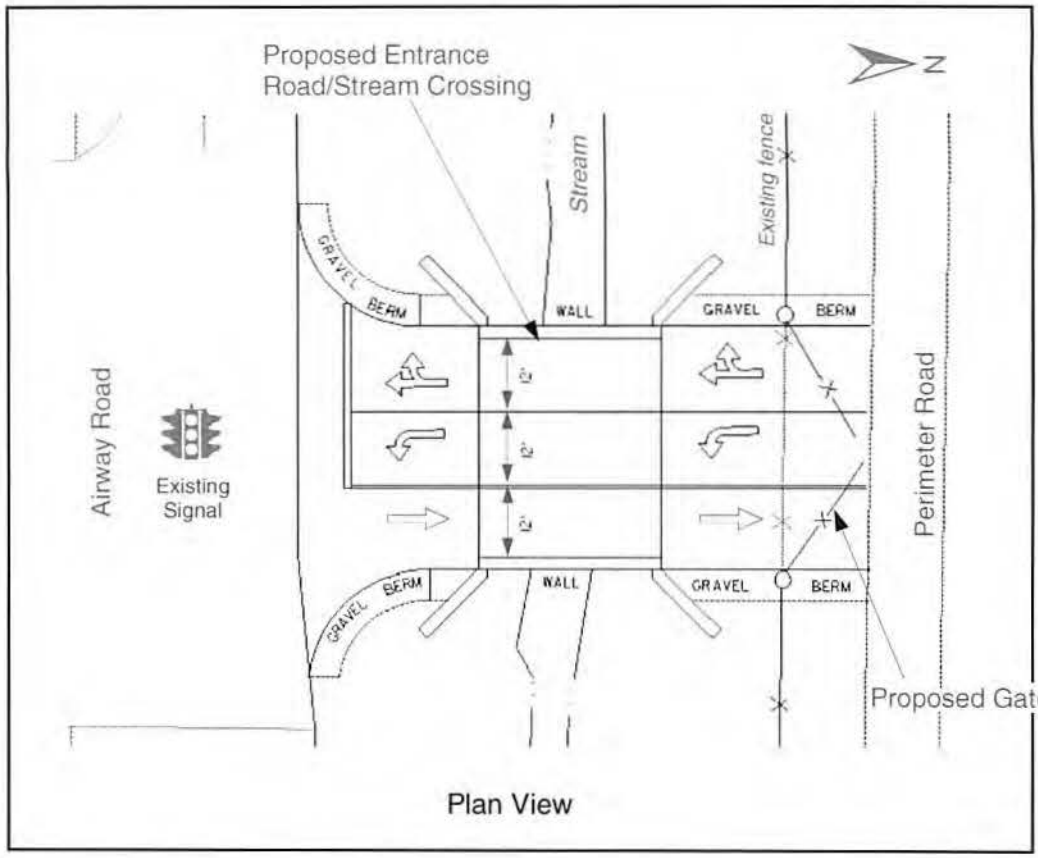
8.0 Exhibits

Exhibit 1. Regional Location map
Exhibit 2. USGS quadrangle map
Exhibit 3. Alternative Locations Map
Exhibit 4. Airway Alternative (Proposed Action) Concept Plan
Exhibit 5. City of Riverside Engineer Coordination Letter
Exhibit 6. Photos of the Project Area
Exhibit 7. Qualitative Habitat Evaluation Index (QHEI) Form
Exhibit 8. FEMA Flood Insurance Rate Map
Exhibit 9. USEPA Electronic Mail Correspondence

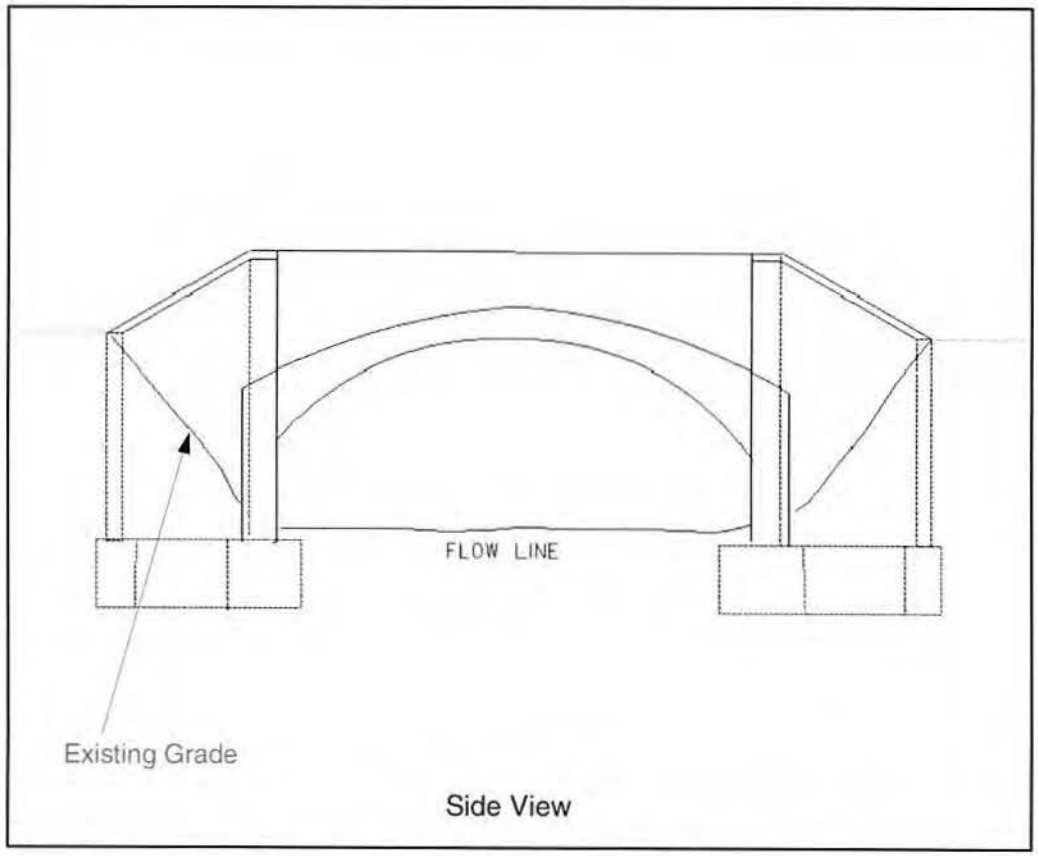

70
75
Clark County
Greene County
WPAFB
Harshman Rd
4
USAF Museum
Dayton
Airway Rd
Montgomery County
675
Exhibit 1
USAF Museum Location
New Museum Security Gate
WPAFB, Ohio
N
Approx. Scale 1"=2.5 miles


Existing Museum Gate
AREA B
USAF Museum
Loop Road
WRIGHT-PATTERSON AIR FORCE BASE
(Closed)
Harshman Rd. Alternative
Airway Rd. Alternative (Proposed Action)
U.S. ARMY RESERVE CENTER
Springfield Street
Eastwood Park
Riverside
MAD RIVER
Page Manor
REVERLY GARDENS
New Germany
DAYTON
Exhibit 2
USGS Map, Fairborn, Ohio
New Museum Security Gate
WPAFB, Ohio
N
0 500 1,000 2,000
Feet


Harshman Road Alternative
Accelerated Runway 9-27
Perimeter Road
Airway Road Alternative
(Proposed Action)
Stream
Harshman Road
Airway Road
Page Manor
Shopping Center
Page Manor Residences
Spinning Road
Speedway
Fuel Station
Airway Shopping
Center
Woodman Drive
Exhibit 3
Alternative Site Locations
New Museum Security Gate
WPAFB, Ohio
Approx. Scale 1"=500'
N



Plan View



Side View

Exhibit 4
Airway Alternative (Proposed Action)
Concept Plan

New Museum Security Gate
WPAFB, Ohio

Not to scale

LJB Inc. • (937) 259-5000 tel • LJB Inc. • (937) 259-5100 fax • www.ljbinc.com • 1610 Research Blvd. • P.O. Box 20246 • Dayton, OH 45420-0246

September 5, 2002

Mr. Rick Baumann
Civil Engineer
5151 Wright Avenue
WPAFB 45433

RE: Airway and Spinning Roads - Suggestions for Intersection Modifications

Dear Rick:

The three sections that follow are suggestions for a no-frill roadway connection (to the north) at the existing Airway and Spinning Road intersection to provide for general traffic. This outline is not intended to be a specification for the intersection but should provide a guideline that is acceptable to the City of Riverside.

General

1. This is to be a gated roadway opened only for special events. Heavy vehicles may also use this roadway.
2. The design will needed to include a stream study prior to culvert design.
3. The new roadway width (north of the existing intersection) should desirably provide 3 lanes; 2 southbound approach lanes (left and thru-right) and 1 northbound receiving lane. This laning will match the south leg of the intersection without transitions. The three (3) lanes on the proposed new intersection leg will probably extend across the culvert.
4. An eastbound left turn lane is desirable and appears to require additional pavement for the proposed left turn lane and for a transition.
5. The existing traffic signal will require modification to provide signals for a new southbound approach and possibly for a part time eastbound left turn, vehicle detection for these new traffic movements, and the modification of other signals. A signal phasing change requiring a new controller will be needed.
6. Signing and marking modifications are required. The use of changeable message signs to notify motorists when the north leg of the intersection is in use should be strongly considered).

Roadway and Culvert

The normal hydraulic design criteria for a stream or channel adjacent to an arterial street such as Airway Road is to keep the 25 year water elevation 9 inches below the edge of pavement and then check the 100 year water elevation to insure no property damage occurs.

In this case, we suggest the following should be considered:

A. Since Airway Road is adjacent to the Base, the Base should decide the design standard that is warranted. The local standards cited above and below will otherwise be sufficient for Riverside.

B. Since the roadway and channel exist, suggest the design criterion in this case be based upon not raising the 25 and 100 year water elevations in the vicinity of the proposed entry. This analysis should be based upon the existing channel and roadway configuration, but assuming the channel is properly cleaned out and maintained.
C. The Base and Riverside should coordinate the efforts with the Montgomery County Commissioners to resolve ditch maintenance responsibilities.
D. We have water surface elevations and perhaps other drainage information at Lily Creek (Woodman & Airway) which could assist with the hydraulic analysis. Suggest designers contact us for more detail at the appropriate time.

Signal

1. The existing signal strain poles at the existing intersection can be used unless the roadway widening and curb returns require a pole relocation. The existing strain poles should be thorough cleaned and repainted as a part of the modification.
2. The sequence at the intersection will need to be changed to provide a split phase operation for northbound and southbound traffic. This is needed because of the part time use of the (gated) north leg of the intersection.
3. A replacement signal controller will be required to operate the proposed sequence and sign controls.
4. Provide new signals, messenger, and cable for the southbound approach. Modify the signals for the remainder of the intersection. It is recommended that new signals and cabling be provided for the entire intersection (in accordance with standards that are being used by the City). The new signals should have LED displays for the red, green, and arrow indications and incandescent lamps in the yellow indications.
5. Vehicle detection is needed for the southbound approach and in the new eastbound left turn lane if a left turn display is required by projected traffic volumes.
6. Changeable message lane-use signs should be used to advise motorists that the gated north roadway is in use. At least 3 of these special signs would be needed (Varicom type signs, if available, are suggested). The controls for changing the signs will need to be positively coordinated with opening and closing the gate on the north leg of the intersection.

If you have questions do not hesitate to call me at 937.259.5076.

Sincerely;
LJB Inc.

Harry G. Herbst III

Harry G. Herbst III, P.E., P.S.
City of Riverside, Acting City Engineer

Copy To: Joe Homan, City Manager, City of Riverside

Exhibit 6. Photos of the Project Area

Proposed Action (Airway Road Alternative) Site

Airway Road/Spinning Road intersection from the southeast corner.

Airway Road/Spinning Road intersection from the southwest corner.

Existing vegetation north of Airway Road at the Spinning Road intersection.

View of proposed gate location from south of Airway Road.

Unnamed stream north of Airway Road near the proposed new gate location, from the east.

Unnamed stream north of Airway Road near the proposed new gate location, from the west.

Close-up view of the unnamed stream north of Airway Road near the proposed new gate location.

Dense honeysuckle near the fence at the proposed new gate. The perimeter road is visible just inside the fence

Harshman Road Alternative Site

Existing gate along Harshman Road, from the north.

Existing gate along Harshman Road, from the north, close-up.

View north along Harshman Road from the existing gate.

Existing USAF Museum Entrance

Existing museum entrance gate along Springfield Street, from the west.

View north along existing museum entrance road, from inside the fence.

OhioEPA Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 50.5

River Code: — **RM:** 0.8 **Stream:** Unnamed Stream
Date: 12/16/02 **Location:** Airway Road at Spinning Road, Dayton
Scorers Full Name: Robert Hack **Affiliation:** CH2M Hill

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE
☐☐-BLDR /SLBS[10]	___	___
☐☐-BOULDER [9]	___	___
☐☐-COBBLE [8]	___	___
☐☐-HARDPAN [4]	___	___
☐☐-MUCK [2]	___	___
☐☐-SILT [2]	___	___
☑☐-GRAVEL [7]	___	✓
☐☐-SAND [6]	___	✓
☐☐-BEDROCK[5]	___	___
☐☐-DETRITUS[3]	___	___
☐☐-ARTIFICIAL[0]	___	___

NOTE: Ignore Sludge Originating From Point Sources

SUBSTRATE ORIGIN — Check ONE (OR 2 & AVERAGE)
☐ -LIMESTONE [1] ☑ -TILLS [1] ☐ -WETLANDS[0] ☐ -HARDPAN [0] ☐ -SANDSTONE [0] ☐ -RIP/RAP [0] ☐ -LACUSTRINE [0] ☐ -SHALE [-1] ☐ -COAL FINES [-2]

SILT: ☐ -SILT HEAVY [-2] ☑ -SILT MODERATE [-1] ☐ -SILT NORMAL [0] ☐ -SILT FREE [1]

EMBEDDEDNESS: ☐ -EXTENSIVE [-2] ☐ -MODERATE [-1] ☐ -NORMAL [0] ☐ -NONE [1]

SUBSTRATE QUALITY — Check ONE (OR 2 & AVERAGE)

Substrate: 11 / Max 20

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☐ 4 or More [2] ☑ 3 or Less [0]

COMMENTS:

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure)
___UNDERCUT BANKS [1]
✓ OVERHANGING VEGETATION [1]
___SHALLOWS (IN SLOW WATER) [1]
___ROOTMATS [1]

TYPE: Score All That Occur
✓ POOLS> 70 cm [2]
___ROOTWADS [1]
___BOULDERS [1]
___OXBOWS, BACKWATERS [1]
___AQUATIC MACROPHYTES [1]
___LOGS OR WOODY DEBRIS [1]

COMMENTS:

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ - EXTENSIVE > 75% [11]
☐ - MODERATE 25-75% [7]
☑ - SPARSE 5-25% [3]
☐ - NEARLY ABSENT < 5%[1]

Cover: 6 / Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER
☐ - HIGH [4]	☐ - EXCELLENT [7]	☐ - NONE [6]	☐ - HIGH [3]	☐ - SNAGGING ☐ - IMPOUND.
☐ - MODERATE [3]	☐ - GOOD [5]	☐ - RECOVERED [4]	☐ - MODERATE [2]	☐ - RELOCATION ☐ - ISLANDS
☒ - LOW [2]	☐ - FAIR [3]	☒ - RECOVERING [3]	☒ - LOW [1]	☐ - CANOPY REMOVAL ☐ - LEVEED
☐ - NONE [1]	☒ - POOR [1]	☐ - RECENT OR NO RECOVERY [1]		☐ - DREDGING ☐ - BANK SHAPING
				☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 7 / Max 20

COMMENTS:

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) ← River Right Looking Downstream →

RIPARIAN WIDTH (L R Per Bank)	FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) (L R Most Predominant Per Bank)		BANK EROSION (L R Per Bank)
☐☐ - WIDE > 50m [4]	☐☐-FOREST, SWAMP [3]	☐☐-CONSERVATION TILLAGE [1]	☒☒-NONE/LITTLE [3]
☐☐ - MODERATE 10-50m [3]	☐☐-SHRUB OR OLD FIELD [2]	☐☐-URBAN OR INDUSTRIAL [0]	☐☐-MODERATE [2]
☐☒ - NARROW 5-10 m [2]	☒☒-RESIDENTIAL,PARK,NEW FIELD [1]	☐☐-OPEN PASTURE,ROWCROP [0]	☐☐-HEAVY/SEVERE[1]
☒☐ - VERY NARROW <5 m[1]	☐☐-FENCED PASTURE [1]	☐☐-MINING/CONSTRUCTION [0]	
☐☐ - NONE [0]			

1.5 <

Riparian: 5.5 / Max 10

COMMENTS:

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☒ - >1m [6]
☐ - 0.7-1m [4]
☐ - 0.4-0.7m [2]
☐ - 0.2- 0.4m [1]
☐ - < 0.2m [POOL=0]

At current over gas line

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☒ -POOL WIDTH > RIFFLE WIDTH [2]
☐ -POOL WIDTH = RIFFLE WIDTH [1]
☐ -POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY (POOLS & RIFFLES!) (Check All That Apply)
☐ -EDDIES[1] ☒ -FAST[1] ☒ -MODERATE [1] ☒ -SLOW [1] ☐ -TORRENTIAL[-1] ☐ -INTERSTITIAL[-1] ☐ -INTERMITTENT[-2] ☐ -VERY FAST[1]

Pool/Current: 11 / Max 12

COMMENTS:

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
☒ - Best Areas >10 cm [2]	☐ - MAX > 50 [2]	☐-STABLE (e.g.,Cobble, Boulder) [2]	☐ - NONE [2]
☐ - Best Areas 5-10 cm[1]	☒ - MAX < 50[1]	☐-MOD. STABLE (e.g.,Large Gravel) [1]	☐ - LOW [1]
☐ - Best Areas < 5 cm [RIFFLE=0]		☒-UNSTABLE (Fine Gravel,Sand) [0]	☐ - MODERATE [0] ☒ - EXTENSIVE [-1]

Riffle/Run: 2 / Max 8

COMMENTS: ☐ - NO RIFFLE [Metric=0]

Gradient: 8 / Max 10

6] GRADIENT (ft/mi): 38 DRAINAGE AREA (sq.mi.) : 1.8 %POOL: 5% %GLIDE: %RIFFLE: 30% %RUN: 65%

** Best areas must be large enough to support a population of riffle-obligate species

Is Sampling Reach Representative of the Stream (Y/N) Y If Not, Explain: @ proposed impact area.

Major Suspected Sources of Impacts (Check All That Apply):
None ☐
Industrial ☐
WWTP ☐
Ag ☐
Livestock ☐
Silviculture ☐
Construction ☐
Urban Runoff ☑
CSOs ☐
Suburban Impacts ☑
Mining ☐
Channelization ☑
Riparian Removal ☑
Landfills ☐
Natural ☐
Dams ☐
Other Flow Alteration ☐
Other: _____

	Gear:	Distance:	Water Clarity:	Water Stage:	Canopy -% Open
First Sampling Pass					

Subjective Rating (1-10): 3

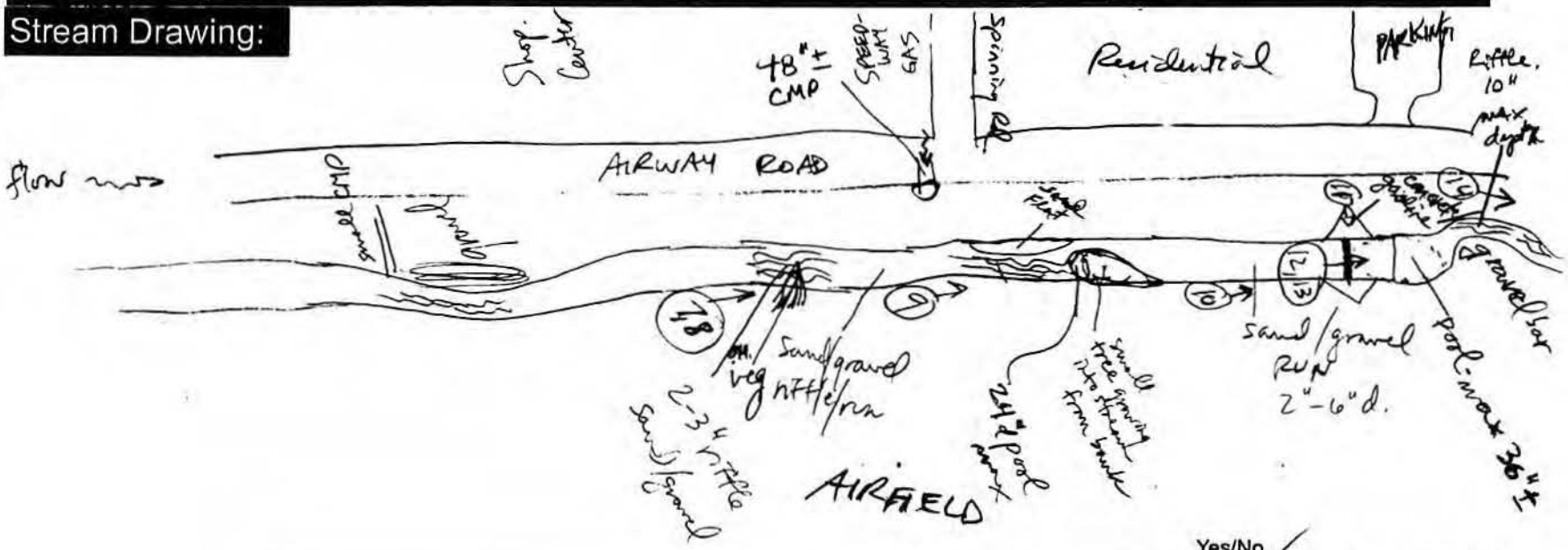
Aesthetic Rating (1-10): 3

Gradient: ☐ - Low, ☐ - Moderate, ☒ -High

Stream Measurements:

Average Width	Average Depth	Maximum Depth	Av. Bankfull Width	Bankfull Mean Depth	W/D Ratio	Bankfull Max Depth	Floodprone Area Width	Entrench. Ratio
12'	2"	2"	15.5'	20"	9.3	28"	±19'	

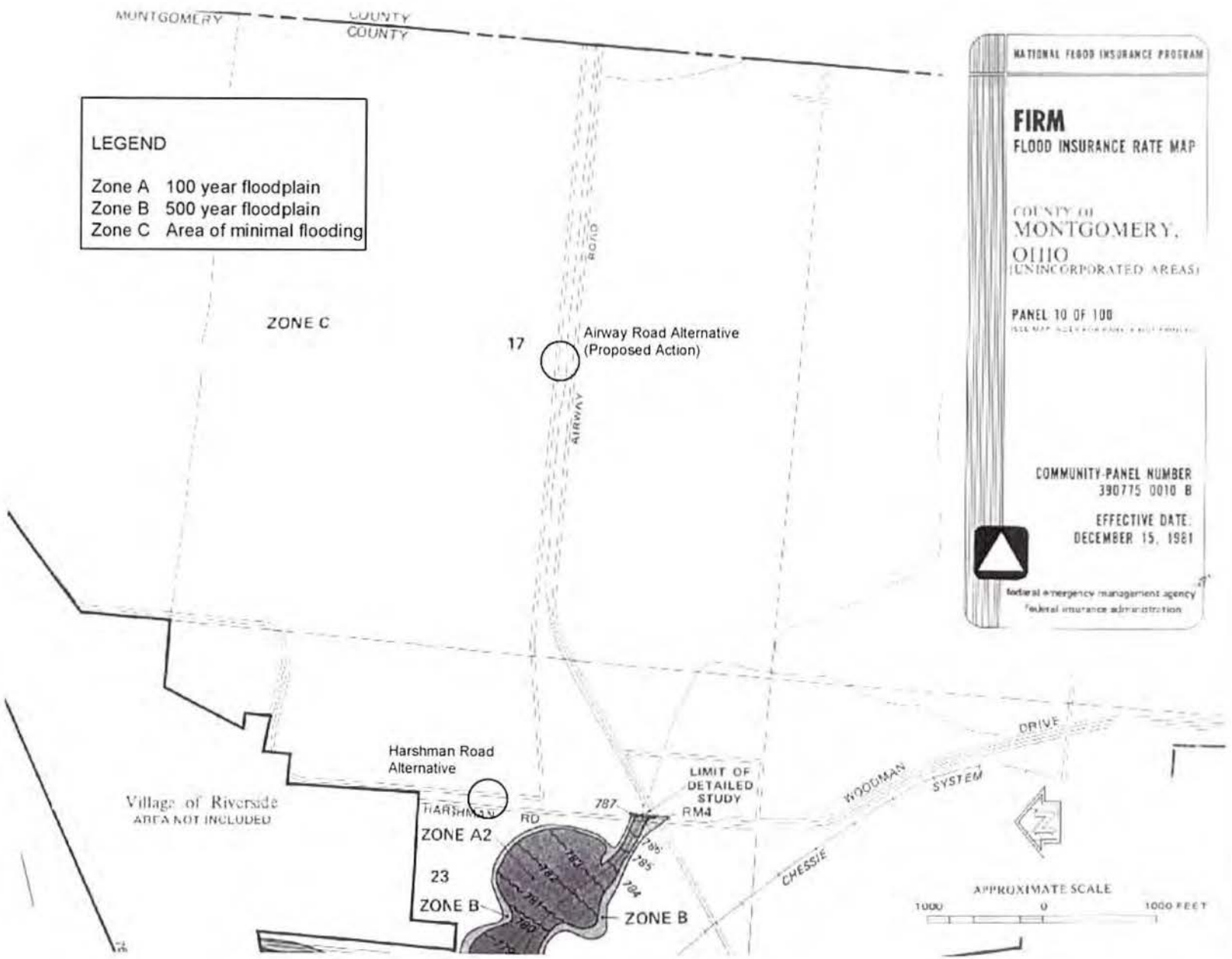
Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

Yes/No	
☐ ☑	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
☐ ☐	Is there water upstream? How Far: _____
☐ ☐	Is There Water Close Downstream? How Far: _____
☐ ☐	Is Dry Channel Mostly Natural?

Exhibit 8. FEMA Flood Insurance Rate Map



From: Ryan.Williamj@epamail.epa.gov
Sent: January 16, 2003 11:10 AM
To: Hook, Robert/DAY
Subject: Re: Federal projects subject to review for SSA

Mr. Hook:

As described, it appears that the project described below does not pose a substantial threat to the Miami Buried Valley Aquifer, a Sole Source Aquifer designated under the authority of the Safe Drinking Water Act, Section 1424(e). Unless future developments change the status of the proposal, no modifications or further review under the Sole Source Aquifer Program should be necessary.

Nevertheless, we suggest that during construction appropriate safeguards are in place to ensure that the aquifer is not endangered. Such precautions would include notifying general contractors regarding the sensitive nature of the site, securing adequate precautions for fueling/servicing large equipment, and developing contingency plans to handle the release of any hazardous materials.

Thank you for your cooperation in the Sole Source Aquifer program. If you have any further questions please do not hesitate call me at (312) 353-4374.

Bill Ryan
Sole Source Aquifer Coordinator, Region 5
77 West Jackson Blvd.
Chicago, IL 60604-3590
(312) 353-4374
ryan.williamj@epa.gov

"Hook, Robert/DAY" <rhook@CH2M.com>

To: Williamj Ryan/R5/USEPA/US@EPA

01/10/03 08:25 AM
Subject: Federal projects subject to review for SSA

Mr. Ryan:

I am preparing an Environmental Assessment for a project at Wright-Patterson AFB, Montgomery County, Ohio. The project is a new security gate, will include a 3 lane access lane less than 100 feet long, which crosses a small stream that parallels a 4 lane roadway. The total impact area will be less than 1/2 acre of land area. I expect the crossing to meet the conditions of Nationwide Permit 14.

The project is located over the Miami Valley Buried Aquifer. Can you tell me if this project will require an individual USEPA review for SSA impacts? Can you direct me to regulations on the web (or elsewhere) regarding which projects require an EPA review?

Thanks for your assistance.

Rob Hook
CH2M Hill
One South Main Street, Suite 1100
Dayton, Ohio 45402
VOICE (937) 228-3180, x 267
FAX (937) 228-7572